DOCUMENT RESUME

ED 093 816 SP 008 181

AUTHOR	Shick, Jacqueline, Ed.; Hague, Andrea, Ed.
TITLE	Acrchery-Golf Guide. June 1974-June 1976.
INSTITUTION	American Association for Health, Physical Education, and Recreation, Washington, D.C. Div. for Girls and Women's Sports.
PUB DATE	74
NOTE	142p.
AVAILABLE FROM	American Alliance for Health, Physical Education, and Recreation, 1201 16th Street, N.W., Washington, D.C. 20036 (Stock No. 243-25532; No price quoted)
EDRS PRICE	MF-$0.75 HC Not Available from EDRS. PLUS POSTAGE
DESCRIPTORS	Annotated Bibliographies; *Archery; Athletic Activities; Athletics; Guidelines; *Guides; Physical Education; Teaching Methods; Video Tape Recordings; Visual Aids; Womens Athletics
IDENTIFIERS	*Golf

ABSTRACT

This guide is a collection of essays by various authors on archery and golf. There is a separate section for each sport. In the archery section, the topics covered include archery coaching, aiming, the spine of the arrow, do-it-yourself ideas for archery instruction, archery visual aids, and official rules for various archery activities. The section on golf includes essays on golf teams, video tape for using the golf swing, programed learning rules and etiquette of golf, the motivation of the woman golfer, and putting. There is an annotated bibliography in each section. (JA)

SP

SPORTS LIBRARY FOR GIRLS AND WOMEN

ED 093816

Archery - Golf
GUIDE

JUNE 1974 – JUNE 1976

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
NATIONAL INSTITUTE OF EDUCATION
THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL NATIONAL INSTITUTE OF EDUCATION POSITION OR POLICY

PERMISSION TO REPRODUCE THIS COPYRIGHTED MATERIAL BY MICROFICHE ONLY HAS BEEN GRANTED BY
NEA
TO ERIC AND ORGANIZATIONS OPERATING UNDER AGREEMENTS WITH THE NATIONAL INSTITUTE OF EDUCATION. FURTHER REPRODUCTION OUTSIDE THE ERIC SYSTEM REQUIRES PERMISSION OF THE COPYRIGHT OWNER

SP008 187

NATIONAL ASSOCIATION FOR GIRLS AND WOMEN IN SPORT
An Association for Health, Physical Education, and Recreation

SPORTS LIBRARY
FOR GIRLS AND WOMEN

NATIONAL ASSOCIATION FOR GIRLS AND WOMEN IN SPORT

Each Guide contains official playing rules for girls and women; articles on techniques, teaching, and organization; bibliographies; and certain special features related to the sports covered in the respective books. A section in each Guide presents information about the National Association for Girls and Women in Sport and the services it offers to teachers.

Current Edition		Stock No.	Next Edition	
1973-75	Aquatics Guide	(243-25386)	June	1975
1974-76	Archery-Golf	(243-25532)	May	1976
1974-75	Basketball Guide	(243-25534)	July	1976
1973-75	Bowling-Fencing Guide	(243-25364)	January	1975
1974-76	Field Hockey-Lacrosse Guide	(243-25538)	June	1976
1973-75	Gymnastics Guide	(243-25392)	May	1975
1973-75	Outing Activities and Winter Sports Guide	(243-25394)	May	1975
1974-76	Soccer-Speedball-Flag Football Guide	(243-25542)	June	1976
1974-76	Softball Guide	(243-25488)	January	1976
1974-76	Tennis-Badminton-Squash Guide	(243-25544)	May	1976
1974-76	Track and Field Guide	(243-25490)	January	1976
1973-75	Volleyball Guide	(243-25396)	June	1975

No returns. Discounts on quantity lots of same title. Order for *Guides* will be filled with current editions unless otherwise specified. All orders from individuals must be accompanied by payment. Orders from institutions and organizations may be billed if on official purchase order form and amount to at least $10.00. Shipping and handling charges will be added to all billed orders. Postage stamps are not accepted as payment. No C.O.D. orders.

SCOREBOOKS

Official Basketball (243-07186), Field Hockey (243-06870), Softball (243-07184), Volleyball (243-07834).

ORDER FROM

American Alliance for Health, Physical Education, and Recreation
1201 Sixteenth Street, N.W., Washington, D.C. 20036

ED 093816

Archery - Golf
GUIDE

JUNE 1974 – JUNE 1976

With Official Rules

Editors

Jacqueline Shick, Archery

Andrea Hague, Golf

NATIONAL ASSOCIATION FOR GIRLS AND WOMEN IN SPORT

American Alliance for Health, Physical Education, and Recreation

Copyright © 1974 by the
National Association for Girls and Women in Sport
American Alliance for Health, Physical Education, and Recreation

Library of Congress Catalog Card No. 72-77664

Published by the

AMERICAN ALLIANCE FOR HEALTH, PHYSICAL EDUCATION, AND RECREATION

A National Affiliate of the National Education Association

1201 Sixteenth St., N.W. Washington, D.C. 20036

CONTENTS

NATIONAL ASSOCIATION FOR GIRLS AND WOMEN IN SPORT		5
Sports Guides and Official Rules Committee Interest Indicator		7
Standards in Sports for Girls and Women		8
ARCHERY		
NAGWS Archery Committees		9
Editorial Comment		10
We Need Your Help!		11
Looking at Olympic Archery	*Carolyn Addison*	12
The Psychology of Coaching Archery	*Rita Klenke*	15
Let's Provide Archery Competition	*Judith A. Jenkins*	18
Two Approaches to Teaching Archery	*Joan Milne*	21
Mini Rounds for Archery Classes	*Nelle S. Martin*	25
Aiming	*Mary Bethene Carlson*	29
Beyond the Bow and Arrow	*Martha Kipp Barber*	31
The Spine of the Arrow	*Dick Garver, Sr.*	44
Limited Budget? Do-It-Yourself Ideas	*Harriet Barnes*	47
A "Do-It-Yourself" Indoor-Outdoor Instructional Ground Quiver	*Martha Kipp Barber*	55
Annotated Archery Bibliography	*Mary Bethene Carlson*	58
Archery Visual Aids	*Lela June Stoner*	64
Official Rules for Archery Tournaments		69
Indoor Archery Rules of Shooting		78
International Archery Federation Target Archery Rules of Shooting		80
National Field Archery Association Official Rules		85
GOLF		
NAGWS Golf Committees		89
Editorial Comment		90
A Contract for Golf	*Doddy Michalson*	91
A Videotape for Learning the Golf Swing Using the TOTE Model	*Tonya Toole*	96
Programmed Learning Rules and Etiquette of Golf	*Ben Bruce, Jr.*	101
Starting a Golf Team	*Margaret Cummins*	104

What Motivates the Successful Woman Golfer?	*Andrea Hauge*	108
How the Student Learns	*Celeste Ulrich*	110
A Basic Golf Unit – Guide for Content	*Carol Johnson*	117
Each One Teach One	*Jan Wood* and *Elinor Nickerson*	121
Sympathy Not "Tee"	*Kathryn Wright* and *Mary Lee Bartlett*	124
A Gamelike Putting Test	*G. Jean Cerra*	128
Testing Golf Skill with Plastic Balls	*Doyice J. Cotten, Jerry R. Thomas,* and *Thomas Plaster*	133
Annotated Golf Bibliography	*Florence Berry*	136
Golf Visual Aids	*Kathryn Wright*	138

NATIONAL ASSOCIATION FOR GIRLS AND WOMEN IN SPORT

The National Association for Girls and Women in Sport is a nonprofit, educational organization designed to serve the needs and interests of administrators, teachers, leaders, and participants in sports programs for girls and women. It is one of seven associations of the American Alliance for Health, Physical Education, and Recreation.

PURPOSE

The purpose of the National Association for Girls and Women in Sport is to foster the development of sports programs for the enrichment of the life of the participant.

BELIEFS

The National Association for Girls and Women in Sport believes that:

Sports are an integral part of the culture in which we live.

Sports programs are a part of the total educational experience of the participant when conducted in educational institutions.

Opportunities for instruction and participation in sports appropriate to her skill level should be included in the experience of every girl.

Sports skills and sports participation are valuable social and recreational tools which may be used to enrich the lives of women in our society.

Competition and cooperation may be demonstrated in all sports programs, although the type and intensity of the competition and cooperation will vary with the degree or level of skill of the participants.

An understanding of the relationship between competition and cooperation and the utilization of both within the accepted framework of our society is one of the desirable outcomes of sports participation.

Physical activity is important in the maintenance of the general health of the participant.

Participation in sports contributes to the development of self-confidence and to the establishment of desirable interpersonal relationships.

FUNCTIONS

The National Association for Girls and Women in Sport promotes desirable sports programs through:

1. Formulating and publicizing guiding principles and standards for the administrator, leader, official, and player.
2. Publishing and interpreting rules governing sports for girls and women.
3. Providing the means for training, evaluating, and rating officials.
4. Disseminating information on the conduct of girls and women's sports.
5. Stimulating, evaluating, and disseminating research in the field of girls and women's sports.
6. Cooperating with allied groups interested in girls and women's sports in order to formulate policies and rules that affect the conduct of women's sports.
7. Providing opportunities for the development of leadership among girls and women for the conduct of their sports programs.

SPORTS GUIDES AND OFFICIAL RULES COMMITTEE INTEREST INDICATOR

The SGOR Committee is endeavoring to broaden its base of personnel and to strengthen its services to *Guide* readers. The purpose of this form is to offer readers an opportunity to join us in meeting this need. Please complete this form and send it to the SGOR Associate Chairman-elect, Helen Knierim, Wisconsin State Univ., Whitewater 53190.

Name _____

Professional Address _____

City _____ State _____ Zip Code _____

1. Check the Sport Committee(s) which would be of interest to you.

___ Aquatics	___ Field Hockey	___ Softball
___ Archery	___ Flag football	___ Speedball
___ Badminton	___ Golf	___ Squash
___ Basketball	___ Gymnastics	___ Tennis
___ Bowling	___ Lacrosse	___ Track and Field
___ Fencing	___ Soccer	___ Volleyball

2. Would you like to serve as a member of a Sports Guide Committee of your interest?* _____ Yes _____ No
3. Would you consider submitting an article to a Guide Committee as a prospective author? _____ Yes _____ No
   Possible topic or title _____
4. Can you suggest topics for articles which you would like to have included in future *Guides*? (Please indicate sport.)

5. Are there others whom you would recommend for consideration as possible committee members or authors? Please indicate below. (Use additional paper, if necessary.)

Name _____ Sport(s) _____

Professional Address _____

City _____ State _____ Zip Code _____

Sports Committee Member ☐ Prospective Author ☐ (Check one)

*You may serve on only one Sport Guide Committee at a time.

STANDARDS IN SPORTS FOR GIRLS AND WOMEN

Standards in sports activities for girls and women should be based upon the following:

1. Sports activities for girls and women should be taught, coached, and officiated by qualified women whenever and wherever possible.
2. Programs should provide every girl with a wide variety of activities.
3. The results of competition should be judged in terms of *benefits to the participants* rather than by the winning of championships or the athletic or commercial advantage to schools or organizations.

Health and Safety Standards for Players

Careful supervision of the health of all players must be provided by –

1. An examination by a qualified physician
2. Written permission by a qualified physician after serious illness or injury
3. Removal of players when they are injured or overfatigued or show signs of emotional instability
4. A healthful, safe, and sanitary environment for sports activity
5. Limitation of competition to a geographical area which will permit players to return at reasonable hours; provision of safe transportation.

General Policies

1. Select the members of all teams so that they play against those of approximately the same ability and maturity.
2. Arrange the schedule of games and practices so as not to place demands on the team or player which would jeopardize the educational objectives of the comprehensive sports program.
3. Discourage any girl from practicing with, or playing with, a team for more than one group while competing in that sport during the same sport season.
4. Promote social events in connection with all forms of competition.

SOURCES OF INFORMATION AND SERVICE

All requests for information about services should be addressed to: Program Coordinator, National Association for Girls and Women in Sport (NAGWS), AAHPER, 1201 - 16th Street, N.W., Washington, D.C. 20036.

NAGWS ARCHERY COMMITTEES[1]

1972-74

JACQUELINE SHICK, *chairman*, Cooke Hall, Univ. of Minnesota, Minneapolis 55455
MARGARET L. DRISCOLL, *past chairman*, Virginia Polytechnic Institute and State Univ., Blacksburg 24061
CAROLYN ADDISON, Glassboro State College, Glassboro, NJ 08028
MARTHA KIPP BARBER, Alexander Hamilton High School, Los Angeles, CA 90034
HARRIET BARNES, Mississippi State College for Women, Columbus 39701
MARY BETHENE CARLSON, Eastmont High School, East Wenatchee, WA 98801
JUDITH ANN JENKINS, DePauw Univ., Greencastle, IN 46135
RITA M. KLENKE, Univ. of Cincinnati, Cincinnati, OH 45221
NELLE S. MARTIN, Clinton High School, Clinton, WI 53525

1974-76

JUDITH ANN JENKINS, *Chairman*, Bowman Gym, DePauw Univ., Greencastle, IN 46135

---

[1] Present *Guide* material prepared by the 1972-74 Committee. Material for the 1976-78 *Guide* to be prepared by 1974-76 Committee.

EDITORIAL COMMENT

Archery is now an Olympic sport, and the gold medals in both the men's and the women's divisions were captured by the United States. To support what is hoped to be a growing interest in the sport, we have included articles on Olympic archery and the psychology of coaching, as well as official rules for archery tournaments, International Archery Federation target archery rules of shooting, and National Field Archery Association official rules.

Competition should result from sound instruction, and to this end, several articles are directed toward teaching.

Neither teaching nor competition can exist without equipment; therefore, this topic is covered from the standpoint of not only buying equipment but also making your own, a plus in these budget-breaking days.

The 1972-74 Archery Committee has worked hard and hopes that this *Guide* will prove to be interesting and helpful. The editor wishes to extend her thanks and appreciation to all who made a contribution to the publication of the archery portion of the 1974-76 *Archery - Golf Guide*. Special thanks go to Jody Davenport, SGOR chairman, for her help and patience.

The new chairman, Judy Jenkins, has formed her committee and is already planning for the next issue. May she and her committee have great success in their project.

JACQUELINE M. SHICK
Chairman, 1972-74

WE NEED YOUR HELP!

The Archery Committee is concerned with the nature of the content for the 1976-78 edition of the *Guide*. We want it to meet the needs of the professionals it serves. To that end, we solicit your response to any or all of the following:

1. Topics to be included.
2. Specific authorities from whom contributions could be invited.
3. The possible inclusion of a "question-and-answer" section, which would speak to issues not lengthy enough to constitute a complete article. If you believe such a section would be valuable, it would be helpful if you would send questions of interest. If you choose, you might also submit the names of potential respondents.
4. A general reaction to the regular features of past *Guides*. You may wish to suggest additions and/or deletions.

All comments should be mailed to –

Judith Jenkins
Bowman Gym
DePauw University
Greencastle, IN 46135

Remember, the *Guide* is meant to meet *your* needs. It will do so only if you take a few minutes to help us identify them.

Looking at Olympic Archery

CAROLYN ADDISON

Carolyn Addison received her B.S. degree from Madison College, Harrisonburg, Virginia; her M.A. degree from New York University; and her Ed.D. degree from Temple University in Philadelphia. She has taught archery in high school and college and is an archery clinician for the American Archery Council and AAHPER Lifetime Sports Project. She is an assistant professor of physical education at Glassboro State College, Glassboro, New Jersey.

The reflections of "Mr. Archery," Clayton B. Shenk, are recorded here as we look at various aspects of the sport. Shenk is a member of the executive council of the International Archery Federation, executive secretary of the National Archery Association, and one of the International Archery Federation judges from the United States. He is the archery representative to the board of directors of the U.S. Olympic Committee.

The board of directors of the Olympic Committee familiarizes itself with the International Olympic Committee regulations and sets down rules for United States' participation. In preparation for the 1976 Olympic Games, the U.S. Olympic Committee has appointed members-at-large to bring in expertise from athletes who competed in Munich. The author asked Shenk some questions about the Olympics, past and future, in a recent interview at his home. It is hoped that the answers he gave are as interesting to you as they were to the author. The questions are indicated by a "Q" and responses by an "A".

Q: Prior to Munich, how long had it been since archery was a part of the Olympic Games? What was the reason for its absence?

A: Archery had been out of the Olympics for 50 years because, back in the 1920's, there was little or no interest in archery. History tells us that firearms were coming into their recreational importance about this time.

Q: How did other sport groups receive archery on its return to the Olympics?

A: There did not appear to be much feeling one way or another. Each sport group seemed intent upon "doing their own thing." Who cared if a rifleman was intent upon riflery or a basketball player intent upon basketball?

Q: Were there any problems with archery, in regard to scoring, judging, or timing of the event?

A: Nothing questionable occurred in archery. The Russian team did not report for the first day of practice, but other than that, nothing out of the ordinary took place. The judges had to inspect equipment at another time for the Russian team, but there were no problems about it. The entire event ran very peacefully, in an English-type garden setting.

Q: Why was archery treated solely as one competitor against every other competitor? There were enough U.S. archers there to comprise a team, but medals were given only to the three highest places in the men's division and in the women's division.

A: When you shoot a complete Olympic round, it is only one individual against another. A different kind of event would have to be planned if teams were awarded medals.

Q: Why do you question whether archery will be in the Montreal Olympic Games?

A: Because, like all other sport groups, we have not been officially told by the host Olympic Steering Committee that the sport will be included. The new structuring implies that maybe there are too many team sports in the Games. They create most of the problems, requiring host countries to construct huge stadiums.

Q: In what kind of training did Olympic archery teams participate?

A: Calisthenics, running for endurance, and so forth. Some teams exercise both before and during a tournament. The U.S. members were supposed to do calisthenics every day, along with other practice shooting. You must exercise to keep the body and mind alert and free from aches and pains if you expect to shoot well.

Q: What about the comment, made by Vic Berger, that many of the competitors in the Archery Olympics did not use their shoulder muscles?

A: True, he did point out some of the problems archers were having during the Olympics. Shoulder tension is extremely important when an archer wants to put arrows in the gold. Though the mechanical release is not suitable for tournament competition, it is one of the best devices available for training an archer to use his shoulder tension. The mechanical aid will not release without adequate shoulder tension. An archer never has to worry about dragging a finger off the string if the muscles in the shoulders are right. Other means of just holding the shoulder tension and rapidly releasing the fingers have worked for some archers in years past. I'm thinking of a man, E. Hill Turnock, who won bronze medals in the Nationals with this release.

Q: Who will be the Olympic Archery Team coach for the Montreal Games in 1976?

A: Bud Fowlkes was the best available candidate for 1972 because he met the requirements of amateur standing. I don't know who will be the next coach. If a college gets mass results, we may have to look there for the next coach. Bud has worked well with individuals and he knows a lot about tuning equipment. Today, I can't look at any particular archer in the country and say that he's the result of a certain person's coaching.

Q: What is the secret of U.S. men archers in competition?

A: Most archers from the United States have been on their own. Bow hunting has initiated men into shooting a bow, and there are many more men than women shooting at present. There were nearly 70 eligible men and only 24 women at the trials of the U.S. Olympic Team.

Q: Approximately how many points spread the scores between the women's and men's division?

A: Men score about 100 points more than women, even though the women shoot shorter ranges. The men shoot from 90-70-50-30 meters, while the women shoot from 70-60-50-30 meters. Men can repeatedly shoot heavier bows, which produce a flatter cast.

Collegiate archery has demonstrated some improvement during the past ten years. There were 20 collegiate archers competing in the Olympic team tryout.

High schools, however, have not demonstrated interest in archery during recent years. The Junior Olympic Archery Development (JOAD) program, sponsored by the National Archery Association, is active in archery lanes and clubs, but it is hoped that some schools will become involved. Our hopes for tomorrow's Olympic gold medal rests with our youth! The JOAD leadership for schools does not have to come from the physical education departments. Unless there is someone who is really interested and dedicated, the activity just swings along as part of a physical education program and finally dies. Junior Olympic Archery Development program material can be obtained from –

National Archery Association
1951 Geraldson Drive
Lancaster, PA 17601

The Psychology of Coaching Archery

RITA KLENKE

Rita Klenke received her M.Ed. degree from Miami University, Miami, Ohio. She is currently an assistant professor at the University of Cincinnati and has been a member of the faculty at Teela-Wooket Archery Camp.

Whether you win or lose is determined by how you play the game, and how you play the game is often determined by the skill and expertise of the coach. The coach of the superior archer needs to possess a thorough knowledge and understanding of the skills and techniques of archery, an understanding of archery tackle, a photographic eye that can record and analyze the faults and errors in shooting, an insightful understanding of the archer himself, and the communicative skills to instruct, correct errors, and motivate the archer.

Knowledge of the basic archery skills should include the seven basic steps in shooting, namely, the stance, nock, draw, anchor, aim, release, and follow through. The coach must possess not only a thorough knowledge of the "how" of shooting but, more important, the "why" that gives the coach better insight into the errors of the archer. For example, the coach must know "why" drawing with the fingers instead of with the muscles of the upper arm, back, and shoulder tends to make the arrow go left, or "why" the elbow must be kept at shoulder level to keep the third finger on the string so that equal pressure is applied by the three fingers. The direction of the arrow – to the right, left, high, or low – should immediately give the coach a hint as to where the problem may be originating in the shooting form.

Proper tackle is a necessity for the advanced archer. Tackle is a very personal thing that should be matched to the physical attributes of the archer. Proper tuning is vital for good scores. The weight of the bow, the arrow rest, sight, stabilizer, clickers must all be properly chosen, mounted, and aligned. The arrows should match the poundage of the bow and the draw of the archer. The fletching, either feathers or vanes, may make a difference in scores. If the coach does not have knowledge about these, assistance from a professional should be sought.

A photographic eye and knowledge of how to correct a particular fault of the archer is necessary for the coach. Many times the archer will develop a rhythm when shooting and come into the gold from above or below the target. This causes the archer to release automatically instead of setting and steadying. In such cases, the

coach must help alter the pattern so that the archer comes into the gold from the right or left. Shooting should not become automatic; it must be disciplined, and habits must be broken.

An insightful understanding of the archer's personality is important because it gives the coach a clue to the motivational tactics that can be used. For example, why is the archer participating in archery? Is she involved because her family is pushing her to excel, because her boyfriend is an archer, or because she is seeking prestige? Real success will come only if the archer is internally motivated by her own desire to excel.

Self-discipline is a key factor in a champion. The archer must be willing to devote many hours a day to practice and be willing to deny herself other pleasures to become proficient in her chosen sport. She must also be willing to accept criticism from the coach.

The coach should have the archer go through a serial memory of the task to be performed. This memory task involves all the movements in releasing an arrow, in correct order. The archer should perform this task not only during practice but between shots in tournament play. Every arrow must be relived, and an archer must shoot each arrow as if it were the most important shot she will ever make. A perfect end must be forgotten and the concentration be only on the next arrow.

Coaches should attempt to duplicate in practice periods the actual tournament conditions the archer will face. Hypothetical situations should be included, such as equipment failure, down three points in the final ends, and distracting noises. The archer thus has an opportunity to adapt to possible tournament conditions.

In an individual sport such as archery, the tension will mount as a major tournament approaches. Tensions should be relaxed by a planned recreational event. "Start tension," or the tension immediately preceeding the tournament, will often engulf the archer. This should be a time of deep concentration, and her thoughts should be only on her technique. No complicated instruction should be given, only general encouragement. The coach should be alert to assess the needs of the archer only.

The coach may expect the performer to go into a depression after a major tournament, whether she wins or loses. The loser will be disappointed at not winning; the winner may be depressed because she has accomplished her goal, and at that time, she sees no further goals to accomplish. If this be the case, the coach may do well to leave the archer alone the first few minutes after the tournament and approach her later. Women seem to be more susceptible than men to this depression.

Superstitions may be prevalent among tournament participants. Stuffed animals, trinkets, and other items may accompany the

archer to the shooting line. The coach should ignore such obsessions in the archer for, if the archer feels psychologically that these superstitions help her shoot better, not having them may affect the score.

Communication skills are also an attribute of the coach. If the coach understands the personality of the archer, she will know when to demand, cajole, encourage, threaten, plead with, or bribe her performer. Research indicates, however, that superior athletes are motivated by a strong coach who will demand excellence and discipline.

Set your standards high and your superior archer will respond with respect, admiration, and excellence in shooting skills. The other archers will seek and accomplish only mediocrity and will not be members of national, international, or Olympic teams.

SELECTED READINGS

Miller, Myrtle K. *Archery Training Guide*. Roxbury, VT: Teela-Wooket Archery Camp, 1968.

Vanek, Miroslav, and Cratty, Bryant. *Psychology and the Superior Athlete*. London: Macmillan Co., 1970.

Wilson, Lura. "How to 'Tackle' the Tackle of a 'Budding Champ'." *First Connecticut State Camp Archery Counselor Training Program*. Colebrook, CT: The State Camp, 1973.

Let's Provide Archery Competition

JUDITH A. JENKINS

Judy Jenkins received the B.S. degree from Miami University, Oxford, Ohio and the M.S. and P.E. Dir. degrees from Indiana University, Bloomington. She is an assistant professor at DePauw University, Greencastle, Indiana and has an instructor's rating from Teela-Wooket Archery Camp. She is the Midwest Intercollegiate Archery Director and is on the Collegiate All-American Board for the National Archery Association. Also, she has coached interscholastic and intercollegiate archery teams and has been active on the Indiana DGWS Board.

The highly-skilled archer should be encouraged to participate in competition beyond the instructional and intramural programs. A competitive program can be established in your school or college that would require minimal time and effort. Students participating in this experience will welcome the challenge of competition and many may become interested in participating in archery beyond the school years.

A practical way to begin a competitive program is to decide upon a round to be shot and then invite a nearby school or college to shoot in the shoulder-to-shoulder competition. Two or three annual meets will put new life into your archery program.

If time or expenses do not permit a shoulder-to-shoulder meet, or if you want a supplemental experience to the "live" meets, you can conduct a mail tournament with a nearby school or college. Many students can participate in these tournaments, making it possible to include a greater number of interested archers. The time for holding a mail tournament is flexible – sometimes with competition continuing over three, four or more weeks. Generally, the rules for the mail tournament provide that the archer may shoot any number of times within the time period, with the archer's best score entered in the competition with her opponents' This allows for competition with self as well as against an unseen opponent. Also, the competitive pressures are not as great, due to the absence of one's opponents. There are no transportation expenses and it takes little time to compare scores with neighboring schools or colleges. However, mail tournaments should not serve as a substitute for shoulder-to-shoulder meets, for the live meets will provide the ultimate challenge to the student's skills.

In beginning a competitive program, two considerations should be made. First, a coeducational program has many advantages and

should be thoroughly considered. A teacher's time is most efficiently used by providing a program for men and women. The motivational and social aspects of a coed group are beneficial. Women frequently improve more rapidly in technique when exposed to the sharp-shooting skill of men who have had previous archery experience. Men, tending to be more competitive in nature, inspire the women toward greater accomplishments. Second, numbers will draw numbers. It is important when beginning a competitive program to be concerned with quantity as well as quality. Encourage many men and women to compete, no matter what their skill level, and arrange for different levels of shooting competition in the meets – beginning, intermediate and advanced. A greater number of interested archers in secondary schools and colleges will influence the popularity of archery in the years ahead.

Another idea to encourage archers is to have students enter local and/or state archery competition. This exposes them to a competitive experience, to the wide array of tackle and techniques used in archery competition and to the possibilities of shooting in other tournaments. If there are no archery clubs in your area, write to the state archery association for information on scheduled meets. If in doubt as to where to write, direct questions to the National Archery Association, 1951 Geraldson Dr., Lancaster, PA 17601.

As the students' enthusiasm for archery grows, the acquired skills become self-rewarding. All students, whether or not they continue in competition, will have profited from the opportunity to improve their skills through keen competition. Who knows, an instructor's efforts to stimulate students' interest in archery competition may result in a future champion.

Do we not need to provide opportunities to go beyond the rudiments of a sport that has been taught in the instructional program? Increasingly, higher levels of competition provide a stimulus toward better shooting. The instructor can kindle interest in this lifetime sport by providing competition through mail tournaments, interscholastic/intercollegiate competition and state archery association tournaments.

As the competitive program grows, the following sources can be contacted for additional competitive opportunities:

Mail Tournaments

1. AAHPER Outdoor Postal Archery Tournament – elementary through post-high school – Spring – Contact: Julian W. Smith, Outdoor Education Project, Michigan State University, East Lansing, MI 48823
2. NAGWS Intercollegiate Archery Mail Tournament – Fall – Contact: Barbara J. Wilke, East Stroudsburg College, Koehler

Field House, East Stroudsburg, PA 18301
3. National Archery Association Interscholastic Mail Tournament – Spring – Contact: Lura Wilson, Green Central High School, Greene, NY 13778

Shoulder-to-Shoulder Competition

1. U.S. Intercollegiate Archery Championships – Spring – Contact: Margaret L. Klann, Women's Physical Education Dept., Arizona State University, Tempe, AZ 85281
2. Regional Intercollegiate Archery Tournaments – Contact: Margaret L. Klann, Women's Physical Education Dept., Arizona State University, Tempe, AZ 85281, or your regional intercollegiate archery director
3. Interscholastic Archery Tournaments – Contact: High School Athletic or Activities Association

Other Contacts

1. Junior Olympic Development Program for Boys and Girls – Contact: George Helwig, 69 E. Galbraith Rd., Cincinnati, OH 45216
2. Camp Archery Association Award System and Championship Tournament – Contact: National Archery Association, 1951 Geraldson, Dr., Lancaster, PA 17601.

Two Approaches to Teaching Archery

JOAN MILNE

Joan Milne holds instructor ratings from the Outdoor Education Project, Teela-Wooket Archery Camp, and the National Archery Association (NAA). She was formerly the archery coach at Rockford College in Illinois. Before moving to Scottsdale, Arizona, she served as Illinois state director for the College Division of the NAA. She received her B.S. degree from Northwestern University, Evanston, Illinois, and the M.A.T. degree from Rockford College.

With the increased interest in leisure activities, especially in archery, we are well aware of the necessity of preparing more and better instructors. Even before archery made its return to the Olympics in 1972, many programs were under way to prepare the would-be archer to enjoy the sport in his leisure time. The need for proper archery instruction is apparent when we realize that people tend to do what they can do best.

Two of the most widely known schools for archery instructors are the Outdoor Education Project in Archery, sponsored by AAHPER and the American Archery Council, and Teela-Wooket Archery Camp, a private, nonprofit camp for training archery instructors, where the student may qualify as a National Archery Association instructor. Teela-Wooket is located in the Green Mountains of Vermont and is directed by its cofounders, Mr. and Mrs. Edward Miller. The school has been in existence since 1934. The Outdoor Education Project in Archery began in 1955 under its present director, Julian W. Smith, Michigan State University, director of the Outdoor Education Project of AAHPER.

The governing body for all forms of competitive archery in the United States is the National Archery Association (NAA). The expressed purpose of this organization is "to perpetuate, foster and direct the practice of archery . . ."[1] Membership is on an individual or club basis. Membership in the American Archery Council (AAC) is composed of all archery manufacturers and organizations with an interest in promoting archery as a sport, on either a competitive or

---

[1] National Archery Association. *The Archers Handbook*. Lancaster, PA: The Association, 1968.

noncompetitive basis. One of the functions of the AAC is to provide funds to conduct clinics and workshops to teach archery skills.

Although the final goal of each of these organizations is to produce qualified archery instructors, a difference can be found in their basic philosophies and programs. No attempt shall be made by this author to favor or recommend one over the other, as the knowledge and experience she has gained from both of them is invaluable. If you, as an archery instructor, must make a choice, it is suggested that you study your own situation in light of the following information regarding each school's philosophy, availability, length and content of the course, cost, and final certification.

Outdoor Education Project in Archery – AAC

It is the thesis of the Outdoor Education Project in Archery that "all who desire to learn the skills (of archery) shall have equal opportunities to develop their own interests and abilities . . . and that sufficient space and facilities are available for beginning instruction."[2] For these reasons, the main focus of this organization is on large-group instruction at the beginning level. Few teachers have ideal class sizes, equipment, and facilities for individual instruction. The Project has recognized the need to find a way of giving basic instruction in individual sports under these less-than-ideal but too true situations.

The Project uses as its theme "Immediate Participation and Immediate Success." To achieve immediate participation, the instructor will learn how to organize her class so the students, after picking up their equipment (bows are previously strung), will go directly to the shooting line. Within the first hour, the students will know the safety rules and enough about their equipment to allow them to shoot, will shoot one or two ends, and will have experienced success. Each student has a partner and learns to act as a coach from the beginning. By helping another, she is learning what to do to help herself. The instruction is begun by using the most instinctive method of aiming, a high anchor and the open stance at five yards from the target. As the distance is increased, the student is introduced to the pre-gap method of aiming – the aiming method used by hunters. At 20 yards, the student begins shooting with a sight, using a low anchor. The philosophy behind this progression is that the beginning archer has many things to think about in order to develop correct form. By learning to shoot instinctively at the beginning, her full concentration can be placed on the development

[2] AAHPER. *Group Archery Instruction for Beginners.* Washington, DC: The Association, 1967.

of correct form. After the student has achieved some degree of consistency, sight shooting – which requires consistent form – is introduced. Proper shooting techniques remain the same regardless of the type of archery the shooter later prefers to pursue.

The Instructors' courses, on both the beginning and advanced levels, are given several times a year by the Project and last about three days. The location of the workshops depends upon the demand, but they are usually requested by a district or region and are organized through local schools or colleges, drawing people from the nearby areas. The instructors are a select group of men and women who have either been certified as AAC Instructors or otherwise qualify as experts. The money to conduct these workshops is provided by the Outdoor Education Project and AAHPER and the certifying agent, the AAC. There is no cost to the sponsoring organization.

The Beginning Archery Instruction course is recommended for the teacher with little or no archery instruction background. The course deals mostly with the basic steps in shooting. The teacher learns to improve her own skills while learning to conduct large-group instruction. In the advanced course, all facets of archery are pursued in greater depth, with concentration on advanced coaching, kinesiology of shooting, the mechanics of archery equipment, crafts, and programs. Upon successful completion of either course of study, the student will be certified as an Instructor by the AAC. An AAHPER Outdoor Education Archery Instructor's patch is also awarded. If you are interested in having a workshop presented in your area write to Julian W. Smith, Director, Outdoor Education Project, 403 Erickson Hall, Michigan State University, East Lansing, Mich. 48823.

Teela-Wooket Archery Camp – NAA

Ten days spent in the beautiful Green Mountains of Vermont – eating, sleeping, talking, and living archery with some of the finest instructors you could find anywhere – is well worth the cost and time spent attending Teela-Wooket Archery Camp, an NAA certified school. Because of the length of time spent in this course of study, a great deal of material is covered in depth, and there is sufficient opportunity for the student to improve her own skills under expert coaching. The areas covered include selection, care, and making of equipment; rules, knowledge, and experience in target archery, archery golf, field archery, and bow hunting; planning and conducting tournaments; motivational activities for school and camp programs; and such aspects of archery as governing organizations and promotional programs.

While the main purpose of the Outdoor Education Project's course is to teach teachers to provide basic instruction to large groups where staff, facilities, and equipment may be limited, at Teela-Wooket the emphasis is primarily on teaching and coaching the competitive archer. Excellent instruction in the basic form necessary for all types of archery is given, along with continual coaching and coaching hints to the individual participant. The instructors are men and women certified both by NAA and by Teela-Wooket's own high standards.

The basic philosophy of instruction at Teela-Wooket is in marked contrast to the approach of the Outdoor Education Project. The student is started shooting at 20 yards using a low anchor, a square stance, and a preset sight. It is felt that an archer will improve her form more quickly and will not have time to develop bad habits when she can sight a definite point. If the arrows are not grouping and her sight is being used properly, mistakes in form can be more easily recognized and corrected. After the archer has some degree of continual success, she begins to increase her shooting distance. It is after the archer is knowledgeable about the proper techniques of shooting with a sight and has obtained some degree of skill that she is introduced to field archery, using a high anchor and the pre-gap method of aiming.

Upon successful completion of the course, given in June, the archer will be certified by both the NAA and Teela-Wooket's private rating system and will receive certificates and emblems from both organizations. Certification can also be earned at other NAA Instructor Schools. For details on the location of these schools, contact Clayton B. Shenk, Executive Secretary, National Archery Association, 1951 Geraldson Drive, Lancaster, PA 17601.

Since neither Teela-Wooket Archery Camp nor the NAA Instructors' Programs are underwritten, there is a charge for attending these schools. Information on these costs can be obtained by writing their sponsoring organizations. At Teela-Wooket, a limited number of scholarships are available.

Mini Rounds for Archery Classes

NELLE S. MARTIN

Nelle Martin received both B.S. and M.S. degrees from the University of Wisconsin-Madison. She is a National Field Archery Instructor and shoots competitively with the Beloit Field Archers. At present, she teaches physical education at Clinton High School, Clinton, Wisconsin.

Competition is the spark that makes an individual sport an exciting challenge. When classtime archery becomes a drawn-out series of skill-drills and tedious vocabulary studies, the true purpose of the sport is lost. Modified or mini rounds, carefully planned by an enthusiastic teacher, can provide necessary skill practice. The following are some rounds that have proved successful at various levels of instruction.

1. MODIFIED FIELD ROUND – A

Lines are placed at 10, 15, and 20 yards from the standard 48-inch or 36-inch target face. Five (5) ends, of three (3) arrows each, are shot. The target is scored 9, 7, 5, 3, 1, with a total possible score of 135 points.

1st end at the 15-yard line
2nd end at the 10-yard line
3rd end at the 15-yard line
4th end at the 20-yard line
5th end – one arrow each at the 20-yard, 15-yard and 10-yard lines, or shoot entire end at the 15 yard line.

2. MODIFIED FIELD ROUND – B

Using the same target and distances as above, more positive changes may be incorporated as follows:

1st end at the 10-yard line
2nd end at the 15-yard line
3rd end at the 20-yard line
4th end at the 15-yard line
5th end at the 10-yard line
6th end – shoot one arrow each at the 10-yard, 15-yard, and 20-yard lines.
7th end – shoot one arrow each at the 20-yard, 15-yard and 10-yard lines.

The total number of points possible is 189.

3. FAN SHOOT OR SHOOTING ACROSS THE LINE

Three position stakes are placed on the shooting lines for each target. Each archer shoots one arrow from *each* of the three position markers for *each* end. The same distance sequences as those suggested in the two previous field rounds may be used. The number of ends shot will depend upon the length of the class period.

4. MODIFIED FREEMAN ROUND

Lines are placed at 10, 15, and 20 yards. A standard 48-inch or 36-inch multicolor target is used. The scoring is like that used on a Freeman face (5, 4, 3, 2, 1). Five (5) or ten (10) ends are shot with four (4) arrows to an end. Total possible points may be 100 or 200. Rebounds do not score. An arrow cutting two colors is given the higher point value.

100 points
1st end at 10 yards
2nd end and 3rd end at 15 yards
4th end and 5th end at 20 yards.

200 points
Two (2) ends at 10 yards
Four (4) ends at 15 yards
Four (4) ends at 20 yards.

These ends may be shot consecutively as listed or in any other common order selected.

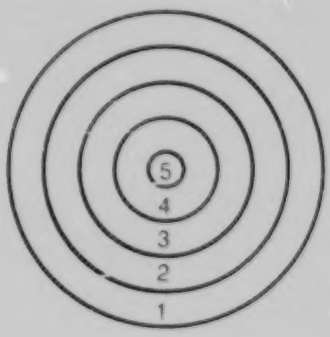


Figure 1. Martin-Mini rounds for archery classes.

The beginning archer will, of course, gradually improve her score as she shoots consecutive ends from the same distance. The more skilled archer may prefer to shoot the first end from 10 yards, the next two ends from 15 yards, the fourth end from 20 yards, the next two ends from 15 yards, and the last end from 10 yards. Any variation of the distance sequence only lends an added challenge to the individual as she improves her skill.

Distances of 15, 20, and 25 yards may be substituted for more advanced archers. Smaller targets may be used for any of the rounds to stimulate greater distances. The 24-inch multicolor works very well for the modified rounds described.

5. ARCHERY-BOWLING

The target size and shooting line distance should be selected by the teacher as those most suitable for the ability of the class. The target is scored 5, 4, 3, 2, 1 and *two* arrows comprise an end. Score is kept on a bowling card. Two center hits are scored a strike, with the usual bonus of the next *two* arrows or "frame." There are no "spares," but rather, all arrows shot are scored. The total possible score is 200 points.

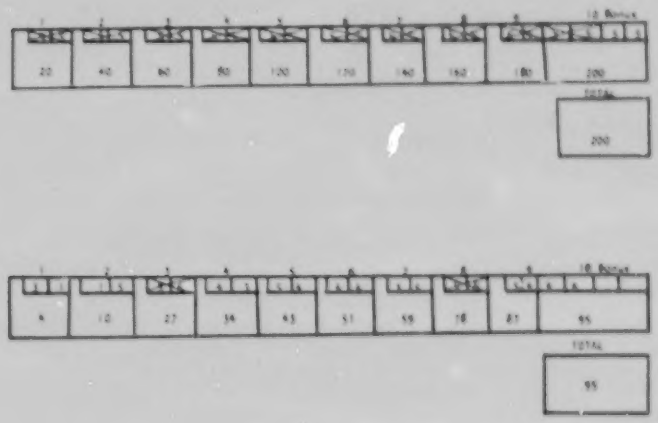


Figure 2.

6. TOURNAMENTS

Any of the rounds may be made more interesting by dividing into teams, thus shooting for both individual high score and top team score. Handicaps may be figured for shoots within the class and between classes. A telegraphic meet between classes may be arranged. The high scorers may choose teams for class shoots, but the top four (4) individual scores may be accepted as the interclass team for that period. This team score is compared with that of the top four archers from each of the other classes.

Individuals within one class may challenge members of another class, naming the mini round and the distance. It is sometimes interesting to have a modified field round shot on one target, a 100-point Freeman at another target, and archery-bowling at still another, during the same class period. Archers may then seek their own level of competition.

Most of all, archery should be fun. The more practice, the better the score, the better the skill, and the happier the archer.

Aiming

MARY BETHENE CARLSON

Mary Bethene Carlson received her B.S. degree from Montana State University, Bozeman, and her M.A. degree from Washington State University, Pullman. She is presently teaching in Eastmont High School, East Wenatchee, Washington.

Should we aim with one eye or both eyes? Textbooks and articles are inconsistent in their instructions of eye usage. McKinney (6) considers eye usage highly individual, and Niemeyer (8) advocates the use of both eyes while aiming. Elmer (3), Ainsworth (1), and Klann (5) recommend that aiming be done with only the right eye open. Broer (2) says to close the nondominant eye while aiming. Elmer (3), Niemeyer (8), Miles (7), and Hart (4) seem to agree that in cases when focus confusion arises, aiming with one eye is preferable, particularly when shooting at long distances.

In an attempt to resolve the question, the writer conducted a study using as subjects only those persons who were laterally dominant. The control group aimed with both eyes, while the experimental group covered the left eye with a patch and aimed with the right eye. Aiming blocks and the point-of-aim method were used by both groups. Instructions were identical. The study was done on an indoor range to eliminate wind, sun, and disturbing visual and auditory cues.

The findings in favor of aiming with both eyes open may have been due to the following factors: (a) perception of self in space may be better when sighting with both eyes, (b) aiming with both eyes may present a clearer field and more cues for visual perception, and (c) poor visual acuity in the dominant eye may be overcome by the use of both eyes. The control group was free from the psychological and/or physical discomfort that the eye patch may have engendered.

It might be interesting to note how your students are really aiming, in regard to eye usage. Check the differences and improvement in scores of those who instinctively shoot with both eyes open compared to those using only the right eye (left eye for left-handed students).

The hypothesis that it is better to aim with one eye, using the point-of-aim method, had to be rejected. Aiming with both eyes open appeared significantly to affect the achievement of the laterally dominant subjects.

BIBLIOGRAPHY

1. Ainsworth, Dorothy S. *Individual Sports for Women*. Philadelphia: W. B. Saunders, 1957.
2. Broer, Marion R. *Efficiency of Human Movement*. Philadelphia: W. B. Saunders, 1964.
3. Elmer, Robert P. *Target Archery*. New York: Alfred A. Knopf, 1946.
4. Hart, Dorothy M. "Factors Which Contribute to Success in Target Archery." Unpublished doctor's thesis, University of Iowa, 1955.
5. Klann, Margaret L. *Target Archery*. Reading, MA: Addison-Wesley, 1970.
6. McKinney, Wayne C. *Archery*. Dubuque, IA: William C. Brown Co., 1966.
7. Miles, Walter R. "Ocular Dominance as Demonstrated by Unconscious Sighting." *Journal of Experimental Psychology* 12:125; April 1929.
8. Niemeyer, Ray K. *Beginning Archery*. Belmont, CA: Wadsworth, 1966.

Beyond the Bow and Arrow

MARTHA KIPP BARBER

Martha Kipp Barber received her B.S. and M.S. degrees from the University of California at Los Angeles and is now teaching archery at Alexander Hamilton High School in the Los Angeles Unified School District.

Most beginning archery students (and teachers) never get much beyond the bow-and-arrow stage of archery equipment. Granted, in large classes of short duration, with limited facilities, one does well to familiarize the students with the basic equipment; yet, the time does come when it behooves us to open up the whole world of archery and its fantastic array of equipment to our students.

Most secondary schools, and probably quite a few colleges, operate on a rather limited budget, and the physical education department is allotted only a certain number of dollars. However, just because archery supplies are relatively expensive and numerous does not necessarily mean that the archery instructor gets a proportionate increase in funds! There is a limit not only in funds, but also in the selection of equipment itself; often committee decisions as to bows, arrows, and targets are placed on a supply list, and any item not on this list is just not available – unless it is purchased with personal funds.

Regardless of the budget allowed or the limits imposed by ordering from required lists, any archery teacher who seeks to increase the interest and motivation of her students (beyond the tricks and games possible in target archery) is remiss if she does not explore the total field of archery equipment and accessories. To teach any phase of archery without presenting at least some of the many facets of new, optional equipment available is almost like teaching history without mentioning Watergate! It is unfair – although probably easier. The least that can be done is to avail oneself of one sample of each of the more commonly used accessories, such as the bow-stringer, on-string finger protector, bow-tip protector, and nocking point, for use in demonstrations and discussion. If nothing else, a rainy day might be spent showing and explaining the details of these aids to better archery. Even such a mundane lesson as distributing manufacturers' catalogs as "textbooks" can often be very exciting to class members who may be thinking of getting their own equipment. These catalogs (which are available in classroom sets from several companies) open a whole new world of archery ideas to students who otherwise would know nothing beyond the class bows, arrows, and targets.

In the area of bows alone, there is a tremendous amount of information and variety, almost too much for one person to absorb: instructional bows, target bows, field bows, hunting bows, take-down bows, and now the incredible compound bow.

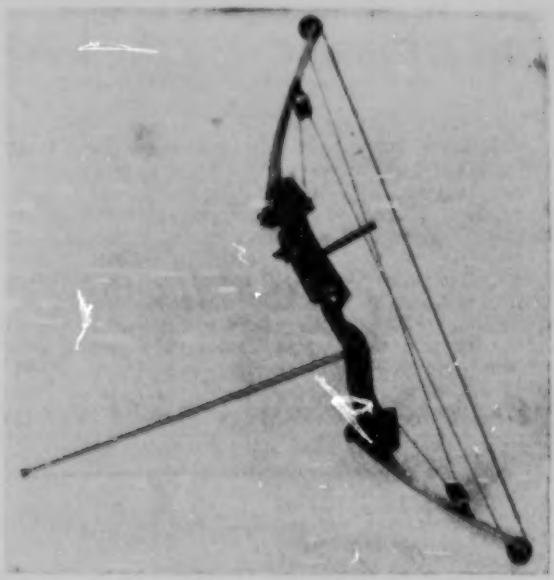


Figure 1. Compound bow.

There are wood bows, fiberglass bows, laminated bows, aluminum bows; short bows, long bows, and cross bows (which are hardly bows at all). The same, of course, is true of arrows: from the "bolt" of the cross bow – which is very short and not an arrow at all – to the incredible number of hunting and fishing arrows, there are aluminum arrows, fiberglass arrows, cedar arrows, and plastic arrows, plus target arrows and flu-flu arrows, to name only a few.

The only truly necessary accessories beyond the bow, arrow, and targets are the arm guard and finger protectors, and even here there is a broad range for selection. There are many styles of arm-guards: all sizes, even extra long for beginners who are prone to hit their

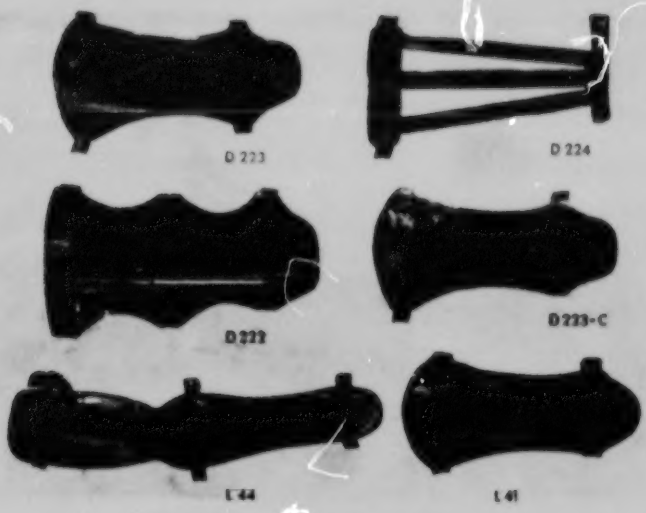


Figure 2. Arm guards.

Figure 3. Beginner's arm guard.

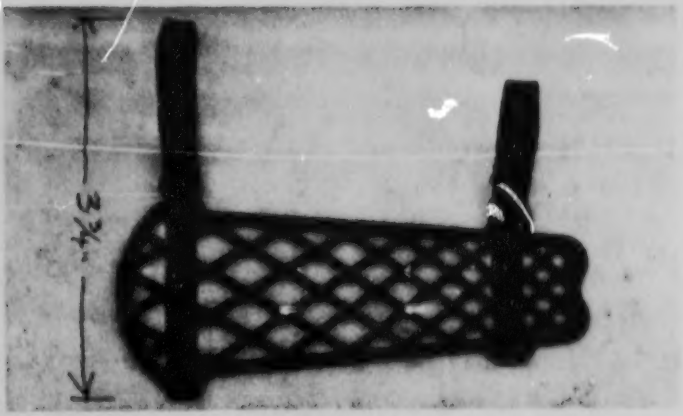


Figure 4. Ventilated arm guard.

inner elbows while learning; many materials: leather, vinyl, and now a plastic one that is ventilated and washable. Archery gloves also come in many sizes and styles; and now there are not only finger

Figure 5. Finger gloves.

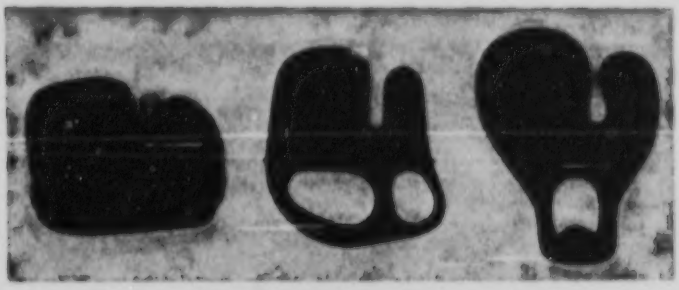


Figure 6. Finger tabs.

tabs, which many students prefer, but also an on-string finger protector which might be much more convenient for both students and teachers.

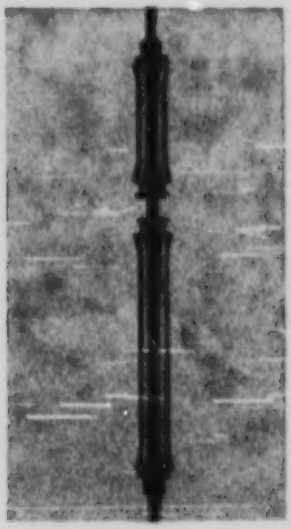


Figure 7. On-string finger guard.

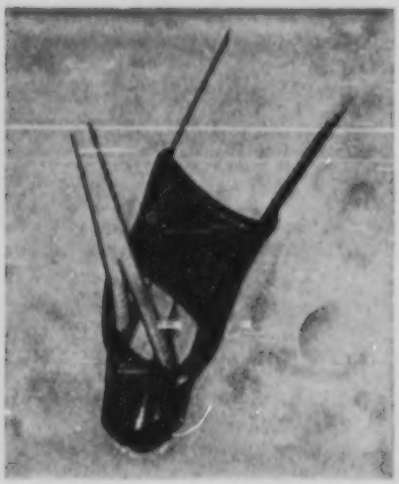
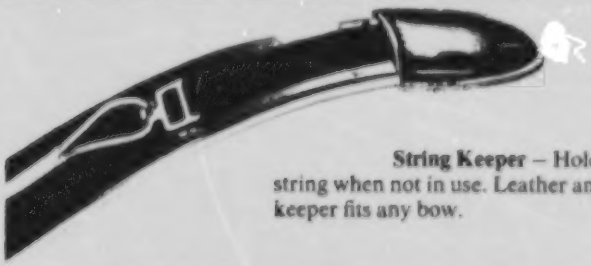


Figure 8. Bow-tip protector (on bow).

If money were no object and the instructor could purchase any and every helpful accessory for her students, perhaps she would choose the following. Naturally, it would be "best" to have every bow equipped with a bow-tip protector and also a string keeper to prevent string loss when the bow is unstrung. Lately, every



String Keeper – Holds bow string when not in use. Leather and elastic keeper fits any bow.

Figure 9. String keeper.

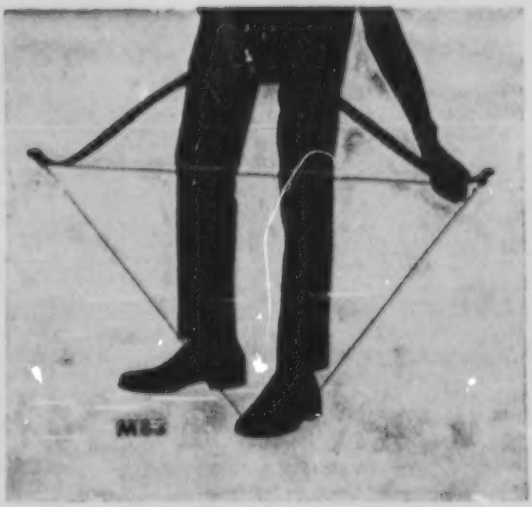
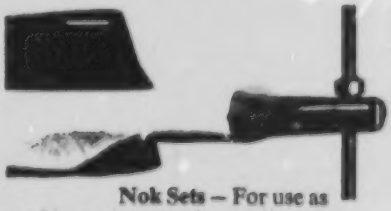


Figure 10. Bow stringer (in use).

manufacturer's booklet admonishes us that to brace a bow with the push-pull or step-through method is not only very dangerous, but also *most* damaging to the bow; therefore, each student should be supplied with a bow stringer.

Surely, no one tries to teach archery without carefully installing a nocking point on every student's bowstring. And would it not

Arrow Nok-Loks
Hold arrow firmly on bow string at any tension desired. You're always prepared to shoot. Shooting hand is freed up, arrow is correctly positioned for every shot. Durable rubber. Easy to install.



Nok Sets – For use as nocking point, attaches easily to bow string.

Figure 11. Nocking points.

Action Kisser Button
Used by tournament archers. Increases accuracy of anchor and adds points to score. Installs easily on string serving. Practically indestructable.

Figure 12. Kisser button.

simplify teaching – as well as learning – if every bow had a "kisser" button to ensure correct anchoring every time? And while we are at it, why not a brush feather or carpet arrow-rest? Of course, for the rank beginner, one's teaching problems are infinitely simplified by

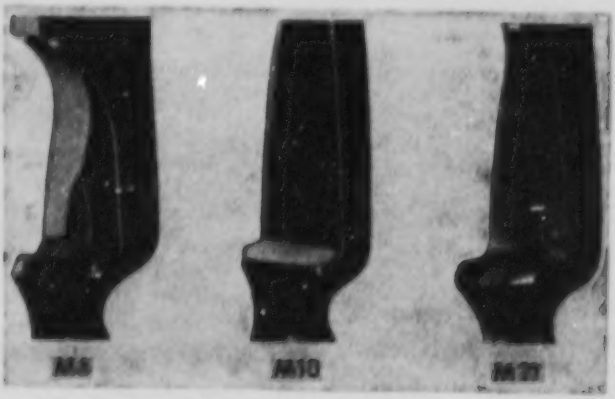


Figure 13. Arrow rests.

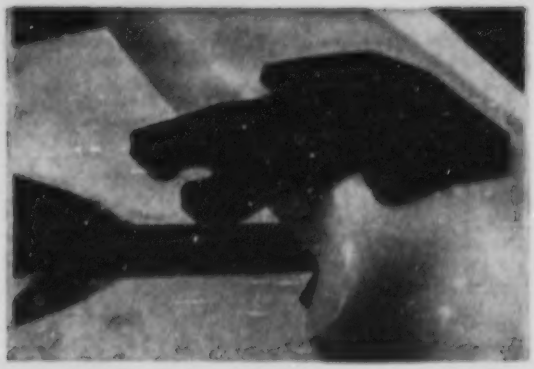
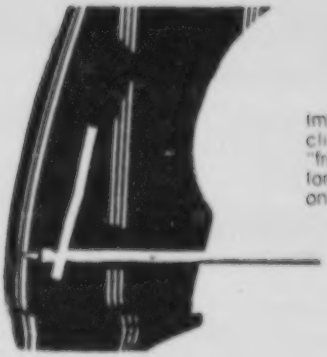


Figure 14. Arrow holder.

attaching one of the new on-bow arrow holders, so that the students are spared that troublesome irritant of having the arrow fall off the shelf every time they spread the bow to full draw! And rather than worry too much about aiming techniques, let's just install a string peep sight, plus any of a number of bow sights; this should ensure a few quick perfect ends to raise morale!

Action Peep Sight
A rear sight, easily inserted in strands of bow string. Insert at eye level when at full draw. Increases accuracy. Improves score.

Figure 15. Peep sight.



Clicker

Improves shooting technique. Spring clicks at full draw, eliminates "freezing" or snap shooting. Made of long-lasting spring steel mounted on leather tab.

Figure 16. Clicker.

The point of all this tongue-in-cheek comment as to what "the complete archer" must have to be successful is merely to bring to the attention of the instructor the wide variety of very useful items that lead to more fun and high scores. Notice that we have not even begun to mention such items as clickers, stabilizers, silencers, or the

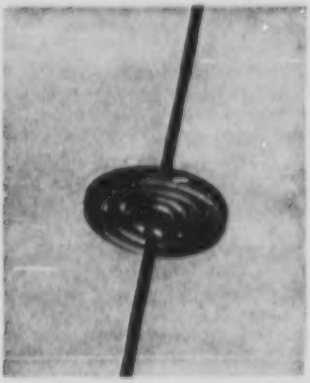


Figure 17. On-string silencer.

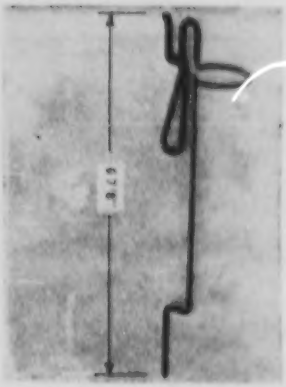


Figure 18. Ground quiver and bow holder.

very controversial releases. Neither have we touched on the variety of quivers – ground quivers, shoulder quivers, waisfe quivers – not to mention the various stands for the target matts, some of which are conveniently portable. So one can see that there is a seemingly

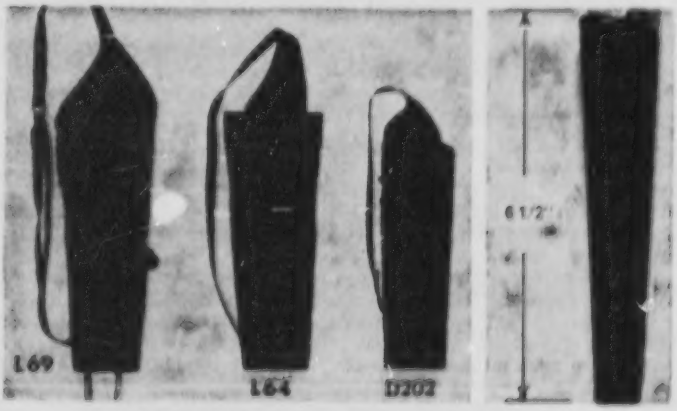


Figure 19. Shoulder quivers and instructional waist quiver.

Figure 20. Portable target matt stand.

unending supply of archery accessories, which the teacher should at least know exists if she is to be able to challenge her students to more and better shooting.

Unfortunately, archery has not yet reached the appeal of some of our other more popular recreational sports so that we can require our students to provide their own equipment. Perhaps someday . . . but until then, classes will be provided with only the most basic equipment. The 30- to 50-dollar bows and aluminum arrows will probably go begging, while most schools will turn to the "instructional" bow and cedar arrows and use bales of hay behind their targetfaces just so they can stretch the dollars far enough to keep the archery program in existence at all.

The following manufacturers have been extremely helpful not only in furnishing illustrations for use in this article, but also in

sending literally pounds of booklets, pamphlets, catalogs, teaching aids, posters, illustrations, and all manner of helpful material. They have all been most generous in giving personal attention to many requests, writing letters of advice, suggestions, and much information, which has been a priceless aid to the author in her teaching as well as in preparing this article. All archery teachers, whether beginning or expert, would do well to contact these manufacturers for teaching aids.

American Archery Council
100 East Ohio Street, Chicago, IL 60611

American Archery Company, Inc.
P.O. Box 100, Industrial Park, Oconto Falls, WI 54154

Archery Manufacturers Organization
618 Chalmers Street, Flint, MI 48503

Bear Archery
Rural Route 1, Grayling, MI 49738

Feline Archery Company
R.D. 1, Greensburg, PA 15601

Howatt, Damon Archery Manufacturing Company
Route 8, Yakima, WA 98902

Hoyt Archery Manufacturing
11510 Natural Bridge Road, Bridgeton, MO 63042

Indian Archery Industries Company
Evansville, IN 47717

Pearson, Ben Archery Company
P.O. Box 270, Tulsa, OK 74101

Saunders Archery Company
Columbus, NE 68801

Shakespeare Manufacturing Company
P.O. Box 246, Columbia, SC 29202

Wing Archery Equipment Company
Route One, Jacksonville, TX 75766

The Spine of the Arrow*

DICK GARVER, SR.

Dick Garver, Sr., author of the book Archery Basic Techniques, *has taught archery for the past 15 years and has given the Instructor's Course in Archery for the County of Los Angeles for the past 12 years. He is a past president of Archery Incorporated of Southern California, Southern California Archery Assn., and the Verdugo Hills Archers.*

Did you know your students can miss the target by two feet at 30 yards and the fault can lie with the arrow?

One of the most important parts of archery on the technical side is the arrow. The arrow must be the correct stiffness (spine), depending on the draw weight of the bow and draw length of the archer, to fly accurately. Most shops specializing in archery have spine testers for checking the spine of the shaft. The large manufacturers can furnish the correct arrow for given bow weights and draw lengths.

When an archer releases at full draw, the arrow must "buckle" around the bow and then come back to a true flight. Years ago they experimented unsuccessfully on a bow with a hole in the center. The archer was unable to release both sides of the arrow at the same time, and thus the arrow would "fishtail" on its way to the target. The modern bows, even though called "centershot" bows, are actually off center 1/16 to 1/8 inch. This is to gain control of the arrow through the correct stiffness of the shaft and with the correct spiral to the feathers to start turning the arrow.

If the arrow is too stiff, the back end of the arrow will go around in a perfect circle trying to go over to the correct position. If the arrow is too limber, it buckles too far around the bow and sways horizontally on its way to the target. If the nocking point on the string is too low, the arrow dips off the arrow rest and has a vertical movement of the back end of the arrow on its way to the target.

When an archer draws his arrow to full draw, the nock end of the arrow is lower. Therefore, the nocking point on the string where he locates the arrow should place the arrow 1/8 inch above 90 degrees to the string.

---

*This article is based on information published in *The Shooting Industry*, October 1970.

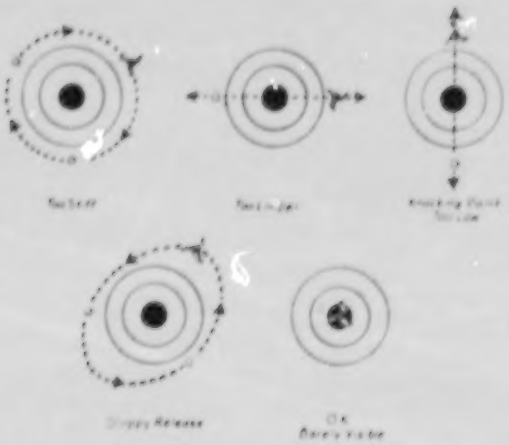


Figure 1. Movement of back end of arrow on way to target.

If an archer has what is called a "sloppy release" (that is, a bad release), his arrow will have an egg-shaped 45-degree movement to the back of the arrow on its way to the target. If everything is correct – the stiffness, the nocking point, and a good release – he will hardly be able to see the back end of the arrow on its way to the target.

When he releases at full draw, the arrow stays on the string to approximately 1 inch inside of the normal, strung position of the bow. It takes approximately 10 feet for the arrow to make the first revolution, determined by the amount of spiral on the feather. He can miss the target two feet at 30 yards and it can be the fault of the arrow.

While this information is inserted to give a better knowledge of the arrow, it is recommended your student stand not over 15 feet from the target while learning to shoot. There is no need to back up any farther until he can put the arrow where he wants it. Shooting from 15 feet, the spine of the arrow is not as critical as it is at 30 yards. The beginner can use a less expensive arrow while learning to draw, anchor, and release the same every time. As soon as he feels he is drawing, anchoring, and releasing the same every time but the arrows are not going into a small group from a short distance, he is ready for a spined set of arrows of either wood, glass, or metal.

Spined arrows will improve his shooting greatly. Port Orford cedar shafts come in four basic sizes with a variety of spines for different weight bows. The fiberglass shafts are available in 13 sizes. The aluminum arrows are best for the precision shooter as they are available in 32 sizes and can be more perfectly matched to bow weight and draw length. The fiberglass and aluminum arrows can be refletched, also.

Tell your students when purchasing arrows to be sure the arrows are long enough for them. The correct length of the arrow is measured with the bow arm extended to full length and from the back of the bow to the anchor point at the corner of the mouth.

The same distance is also measured by placing the arrow on the chest and extending both arms in front. The arrow should extend just beyond the end of the fingers.

Your students will really appreciate having the arrow which makes it easier for them to find the target. Once you understand it, there is really no mystery about the spine of the arrow.

Limited Budget? Do-It-Yourself Ideas

HARRIET BARNES

Harriet Barnes, former associate professor of health and physical education at Mississippi State College for Women in Columbus, has taught and coached archery for many years. She retired in June 1972 but is still active as an archery trainer in summer camps. She received her M.S. degree from Columbia University in New York City and holds an instructor's rating from Teela-Wooket Archery Camp.

Since archery tackle is very expensive and many departments operate on a limited budget, making equipment can be a project that provides an opportunity for challenge and creativity for both students and staff while also meeting a financial need. The following suggestions may be useful and practical.

Quivers

Belt or storage quiver. Obtain cardboard mailing tubes or longer tubes used for holding certain types of cloth. Cut the tube to desired length. For a bottom, use a cork stopper or cut wooden disks and secure them with small nails or tacks. Run a heavy cord through punched holes at the top of each tube to form a loop for a belt clip or for the cord to serve as a belt. Paint or cover them with decorative paper.

Floor or ground quiver. Use a screw or nails to secure a tennis ball can to a square of wood 6 x 6 x 1 inches. Paint the can and block of wood.

For ease of assigning arrows and storing them for daily class use, diagram and number the quiver and corresponding spaces on the floor, wall, or other convenient place. Paint numbers on can quivers and place one set of arrows in each quiver, progressing in length from short to long arrows. Assign quiver containing arrows of proper length to each student for daily use. The assigned quiver is taken to the range, used as a ground quiver, and returned to the proper floor number after class use. The bow can rest on top of the can when not used in shooting. This system prevents confusion and the mixing of arrows. It also provides an orderly method of checking the number and condition of arrows. Post a list of assigned quivers for each class, and hold students responsible for proper care.

Bow Sights

Tape. Place a 5-inch strip of half-inch wide masking or plastic tape on each bow. Use a pin for the sight.

Tongue depressor. Tape a tongue depressor to the bow and use a bobby pin for sight. Scotch Filament Tape is suggested for all taping. It is very strong and leaves no gummy residue.

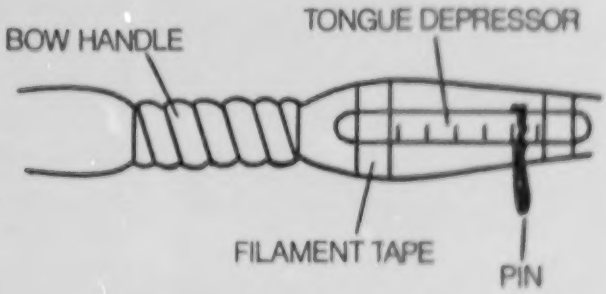


Figure 1.

Weather stripping. Tape a 5-inch piece of weather stripping on the bow. Mark numbers on brown paper of weather stripping. Use a pin. This type can be most satisfactory.

Target Faces

Cut a pattern for a target face of the desired size from particle board, masonite, or other sturdy material. Leave connecting bands of material so that the target pattern will remain in one piece.

Use a pattern to draw the target face circles on flat corrugated cardboard box sides. Regular mattress boxes may be secured from a furniture store for 48-inch faces. Other boxes of desired size can be easily obtained. Use latex water-base paint to paint circles. The janitor or a willing student should make a supply of target faces *before* each archery season. Secure the face to the target mat by punching holes and tying the face to the cord on the mat or use a 10-inch coat hanger wire bent to form a long, narrow "U" to hold the face in place.

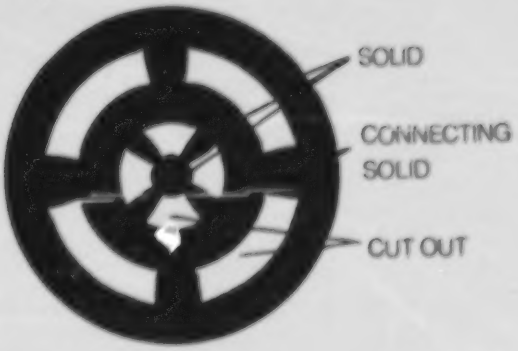


Figure 2.

Finger Tabs

Make a pattern from a bought finger tab. Cut others from scrap leather or a discarded inner tube.

Target Covers

Buy tarpaulin from an army surplus store. Make a target cover pattern so that the cover opens at the center of the back and overlaps about 6 inches when secured by ties. This cover is durable, waterproof, and inexpensive.

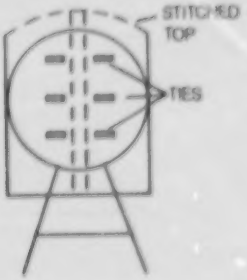


Figure 3.

An upholstery shop will do the necessary stitching at the top and will make and attach tying tapes.

Arrow Rest

Use tin snips to cut pieces 1 x 1/2 inch from a tin can. Wear gloves for safety; tin is razor sharp. Bend the strip at right angles for a quarter-inch or half-inch shelf.

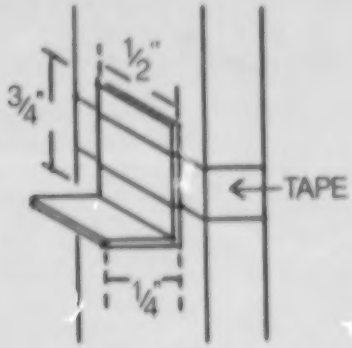


Figure 4.

Cover the shelf and standing portion with two layers of tape and trim to protect fingers and fletching. Secure the arrow rest to the bow by using filament tape. This is satisfactory only for class use.

Arrow Crests

Breakage or loss of arrows frequently results in unmatched crests in a set. Use colored Scotch Plastic Tape to make new identifying crest rings for a matched set or make a new crest for sets with identical crests.

Bow-Stringing Post

The use of the following technique in bracing a bow avoids the possibility of twisting limbs as in the step-through method and the possibility of injury as in the push-pull method.

This technique may be demonstrated and used at once by the weakest, most unskilled student. A minimum of time is used and a few obvious safety rules are needed.

Set a 5-foot long, 4 x 4 inch post in the ground so that it is stabilized in cement. Drive one 6-inch nail securely in the post 20 inches above the ground, and drive a second nail directly above and 20 inches above the first nail. The nails should extend 4 to 5 inches from the post and be wrapped to prevent scratching the bow. "Post steps," secured from the telephone plant, are ideal to use in place of nails.

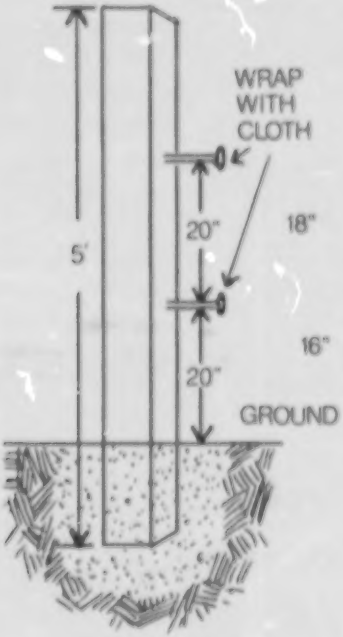


Figure 5.

Stand facing the post with the bow held so that the upper nock is upward and the belly of the bow faces you.

Figure 6.

Place X1 (pivot point of bow grip) *behind* the top nail and place X2 (contact point of lower limb) in *front* of the lower nail.

Cause the bow to bend by pulling X3 (upper limb) toward you and gradually slip the upper loop of string into the upper bow nock.

Figure 7.

Be careful to keep the bow straight and with even pressure on both contact points.

Check to see that the string is secure in both bow nocks.

Unstring the bow by placing it in the same position and reverse the procedure to slip the string out of the nock and down the upper limb.

This technique has been used for several years without injury to bows or students.

Outdoor Temporary Shelter for Tackle

Class time can be saved if tackle can be stored near the shooting range. If it is safe to leave the tackle at the range between classes, this temporary shelter may serve your purpose.

Make a bow rack by nailing a 2 x 4 inch board between two posts about 6 feet high. Hammer the desired number of 3-inch nails about 4 inches apart on the board. Wooden pegs are better, but bow strings will not be hurt by nails if nails are covered with tape or wrapped with cloth. Hang the bows. Place arrows in quivers and place quivers in a sectioned box from a grocery store or beauty shop. Place the quiver box on bricks under the hung bows. It is better to keep the

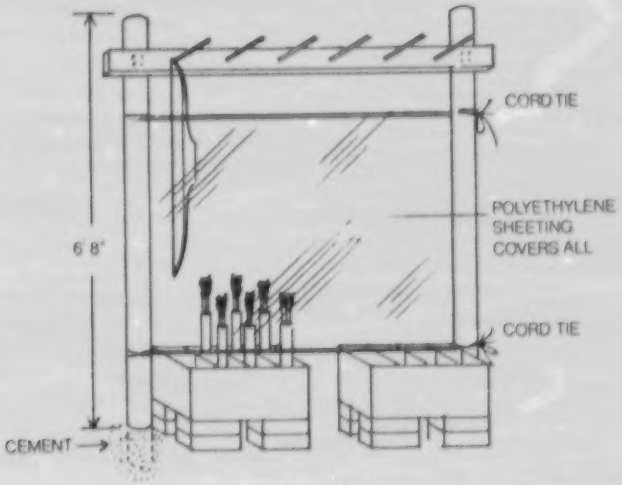


Figure 8.

quiver box off the ground because of possible rain. Arm guards, finger tabs, and such may be placed in another box.

Cover the entire rack and tackle with a sheet of Visqueen or Polyethylene sheeting. Secure the sheeting to the tackle shelter by carrying heavy cord completely around the posts and tackle on the lower and upper sections. This arrangement will keep tackle in place, protect it against rain, and make tackle easily accessible for class use.

All of these ideas have been used successfully. *Your* ideas may be more satisfactory. It's fun "to do your own thing." TRY IT!

A "Do-It-Yourself" Indoor-Outdoor Instructional Ground Quiver*

MARTHA KIPP BARBER

Keeping track of equipment is one of the biggest problems in archery, especially in large outdoor classes where time is short. To avoid spending much of the teaching time working either with equipment or with the monitors who are supposed to be doing it for you, it is necessary to devise systems for fast and easy checking. Whereas such sports as volleyball and basketball require one ball for 12 students and a net or basket that is usually permanent, archery requires as many as 12 pieces of equipment for each participant—bow, bowstring, glove, wrist guard, quiver, six arrows, scorecard, and pencil.

At this writer's school, the range is shared with the track shot-put area, the surface of which is crushed granite and, therefore, impenetrable by the spike of the average ground quiver. After spending hours hammering in turf ground quivers (and pounding most of them to the pretzel stage), the writer devised a two-fold solution. The problem with the regular indoor ground quiver which could be used is that there is no way of immediately checking the number of arrows in the quiver. This means that time must be taken to count arrows at the completion of every retrieve, as well as at the close of the period. The solution is to use a one-pound coffee can with a plastic lid. The coffee can is half-filled with coarse sand, and the lid is punched to receive the six arrows.

Because of the positioning of the six 3/8-inch holes punched in the plastic lid, it is very easy to spot at a glance which quiver is missing arrows as well as exactly how many. The sand in the can keeps the quiver from tipping over in the wind and also helps clean the piles of the arrows.

At the end of each retrieve, the lady paramount, instructor, or the girls assigned to each quiver can easily see where arrows have not been retrieved. Another feature of the six holes is that the arrows are separate and upright and can be clearly identified by crest and fletching as well as by the marked number. Any arrows not properly matched are immediately visible to the girls or the instructor, and exchanges can be made immediately rather than at the close of the

*This article is based on information published in the *Journal of Health, Physical Education, Recreation,* September 1970.

Figure 1.

activity period, when everyone is rushed and equipment gets returned to the tackle box in an incomplete state.

Another helpful feature of this "coffee can quiver" is that it can be painted with a large identifying number; all six arrows can also be marked with this same number to simplify identification and retrieving (in large groups it is impossible to supply every quiver with unique arrows), and furthermore, each girl can be assigned a shooting line position by the number of her assigned quiver.

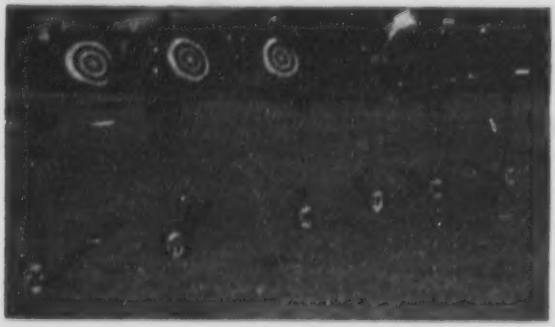


Figure 2.

Coffee cans are usually readily available; students or even faculty can be asked to contribute. The most crucial part of the quiver is the plastic lid. Although the writer's quivers have been in constant use for three or four years with almost no damage, occasionally the openings for the arrows can become torn. These openings should be quite accurate, allowing the arrow just to slip through; 3/8 inch is perfect for the average instructional wood arrow, but for the aluminum or fiberglass arrows, a smaller opening must be specified. If the opening is too large, the arrow will be loose, causing it to tip to the side and possibly crack. The arrow openings in the plastic lids can be punched quite easily by using a leather or metal punch tool.

While the crucial part of this quiver is its plastic lid, this part of the quiver can also be adapted to make the quiver *very* versatile. The writer has found that by having three different lids for every can, the program can be varied tremendously!

A lid with only three holes to receive arrows is excellent during the first weeks of the term. This is a time when students are shooting very close to the target, and too many arrows together can increase the likelihood of breakage. In addition, it has proven much more successful for the beginners to hurry the shooting along to enable each beginner to have as many brief chances at the shooting line as possible during the class period.

An eight-hole quiver can be extremely important during a NAGWS rules tournament, so that each archer will have two extra matched arrows immediately ready in case of breakage during the shooting, without having to wait for and shoot a substitute arrow.

The six-hole lid to the quiver is most useful for class practice shooting in order for girls to become completely familiar with the shooting and scoring used in most school tournaments.

Annotated Archery Bibliography

MARY BETHENE CARLSON

Books

Ambruster, David A., Sr.; Musker, Frank E.; and Irwin, Leslie W. *Basic Skills in Sports for Men and Women.* 5th ed. St. Louis: C. V. Mosby, 1971. $5.95. The chapter on archery has necessary knowledge for beginning teachers.

Ascham, Roger. *Toxophilus.* London: A. Murray & Son, 1545.

Athletic Institute. *Sports Techniques – Archery.* Chicago: The Institute, 1971. $.75. World and national archery champions demonstrate fundamental archery techniques. Glossary.

Bear, Fred. *The Archer's Bible.* Garden City, NY: Doubleday, 1968. $2.50. Covers every phase of archery, field archery, archery games, and bow hunting.

Bow and Arrow Magazine. *The Archer's Digest.* Brea, CA: Gallant Library, 1971. $5.95. History of archery, basic techniques of the sport, plus building a bow and fletching an arrow. Glossary.

Broer, Marion R., ed. *Individual Sports for Women.* 5th ed. Philadelphia: W. B. Saunders, 1971. $9.50. Chapter on field and target archery, including techniques, safety, suggestions for purchase and care of equipment.

Campbell, Donald W. *Archery.* Englewood Cliffs, NJ: Prentice-Hall, 1971. $4.95 cloth, $1.60 paper. Concise coverage of archery techniques, mechanics, fundamental equipment, and conditioning.

Driscoll, Margaret, ed. *Selected Archery Articles.* Washington, DC: American Association for Health, Physical Education, and Recreation, 1971. $1.50. Articles from previous Archery Guides.

Elott Milan E. *Why We Miss.* College Park, GA: The Archery College (5570 Fellwood Rd.), 1970. $3.95. Explains why we miss and, with this knowledge, how we can correct the errors.

Garver, Dick, Sr. *Archery – Basic Techniques.* Sunland, CA: The Author (8644 Foothill Blvd., 91040), 1969. $1.50. Equipment, safety, techniques, and terminology.

Gillelan, G. Howard. *Modern ABC's of Bow and Arrow.* Harrisburg, PA: Stackpole Books, 1969. $4.95. Dependable coach for beginners; reference for veteran archers.

Heath, E. G. *The Grey Goose Wing.* Reading, England: Sprey Publications, 1971. $24.95. An interesting history of archery.

Honda, Shig, and Newson, Ralph W. *Winner or Loser?* Panorama City, CA: Illustrative Specialties (P.O. Box 4371, 91412), 1972. $3.95. Equipment, techniques, errors, and corrections.

Keaggy, David J., Sr. *Power Archery*. 2d rev. ed. Paradise Valley, AZ: Power Archery Products, 1968. $1.95. Explains stance, grip, draw, anchor, release, sighting, breathing, conditioning, and concentration necessary for archery.

Klann, Margaret L. *Target Archery*. Reading, MA: Addison-Wesley, 1970. $3.50. Terminology; rules; techniques, including common shooting errors and suggested corrections; equipment; and safety.

Lifetime Sports. *Archery – A Planning Guide for Group and Individual Instruction*. Washington, DC: American Association for Health, Physical Education, and Recreation, 1972. $3.25.

McKinney, Wayne C. *Archery*. 2nd ed. Dubuque, IA: W. C. Brown, 1971. $.95. Archery fundamentals, bow hunting, and fishing.

National Archery Association. *The Archer's Handbook*. 3d ed. Lancaster, PA: The Association (1951 Geraldson Dr., 17601), 1971. $2.50. History, club organizations, equipment selection, fundamental techniques, and tournaments.

———. *Official Tournament Rules*. 3d ed. Lancaster, PA: The Association, 1973. $2.50. Rules governing the competition and conduct in the National Archery Association Annual Tournament and all six gold tournaments.

Niemeyer, Ray K. *Beginning Archery*. Rev. ed. Belmont, CA: Wadsworth, 1967. $1.25. History, techniques, equipment, rules, and terminology.

Pszczola, Lorraine. *Archery*. Philadelphia: W. B. Saunders, 1971. $2.25. Archery fundamentals, correction of errors, rules, purchase and care of equipment.

Schuyler, Keith C. *Archery from Golds to Big Game*. Secaucus, NJ: Castle Books, 1970. $12. Target archery techniques and hunting small game.

Siegler, Howard T. Pocket Guide to Archery. *Harrisburg, PA*: Stackpole, 1967. $2.95. Field and target shooting, care of equipment.

Pamphlet

Archery Skills Test Manual. Washington, DC: American Association for Health, Physical Education, and Recreation. $1. Contains a series of skills tests with national norms for boys and girls, ages 10-18. Complete instructions for administering the tests and suggestions for their use as instructional aids.

Periodicals

Archery World. Market Communications, Inc., 534 N. Broadway, Milwaukee, WI 53202. Published bimonthly. $4 per year. Official publication of the National Archery Association. Magazine for all archers.

Bow and Arrow. Gallant Publishing Co., 130 Olinda Pl., Brea, CA 92621. Published bimonthly. $3 per year. Articles for both the beginner and expert in all aspects of archery.

Research

Addison, Carolyn F. *Effects of Variations of Target Size, Distance, and Shooting Technique on Archery Performance by College Women Beginners*. Doctor's thesis, Philadelphia: Temple University, 1972. Using the Modified Flint Round and the Modified Chicago Round as measures of achievement, it was found that scores were higher after 12 sixty-minute periods of instruction using small rather than large target faces regardless of distance or shooting technique. Scores were similar when comparing the following factors: constant vs. varying distances and target-archery technique vs. field-archery technique.

Beverley, Leah. *The Effects of Instant Videotape Feedback in Learning Target Archery*. Doctor's thesis, Hattiesburg: University of Southern Mississippi, 1973. Videotape instant feedback was found to be superior to the lecture-demonstration method of instruction in improving the level of skill and form.

Blaess, Nancy N. *The Development of an Archery Knowledge Test*. Master's thesis. Springfield, MA: Springfield College, 1965. A 77-item test.

Bowles, Patricia H. *The Evolution of the Archery Release Technique*. Master's thesis. Sacramento, CA: Sacramento State College, 1971. An historical study of release technique.

Carlson, Mary B. *A Comparison of the Effect of Aiming with One or Both Eyes on the Achievement in Archery of Lateral Dominant Subjects*. Master's thesis. Pullman: Washington State University, 1967. Using both eyes proved more effective than using one.

Carter, Ginger Kelley. *A Study of the Relationship Between Specific Conditioning Exercises and Selected Skills in Badminton and Archery of Freshman Women Students Enrolled in Physical Education Classes at Amarillo College in Amarillo, Texas*. Master's thesis. Denton: Texas Women's University, 1966. Of two groups, the group having activity instruction plus specific conditioning exercises achieved a significant advantage in strength of the arm and shoulder girdle, but not in other fitness measures or in the activities themselves.

Clawson, Alice L. *The Effect of Three Types of Competitive Motivating Conditions upon the Scores of Archery Students*. Doctor's thesis. Denton: Texas Women's University, 1965. The most desirable sequence of motivation seemed to be student-set levels of aspiration early in the program followed by team competition. The least improvement resulted from teacher-imposed goals.

Cooper, Tommy L. *Effects of Initial Practice Distance on the Transfer of Skill and Ultimate Success in Archery.* Master's thesis. University Park: Pennsylvania State University, 1968. Success in target archery was not dependent on the initial distance at which the students learned to shoot, nor was the amount of transfer.

Crane, Susan Rothenberger. *Effects of Various Types of Warm-Up on Scoring Success in Archery.* Master's thesis. Philadelphia: Temple University, 1971. No one method of warm-up proved to be most successful for all aspects of scoring success measured.

Eckert, H., and Wendt, D. "Various Measures Related to Draw in Archery." *Research Quarterly* 37: 145-47; March 1966. Maximal strength measured by a push-pull dynamometer or by a modified bow attached to a cable tensiometer would be effective for assigning bow weights to beginning archers.

Eckert, Helen M., and Wendt, D. M. "Relationship Between Perception of Pull and Draw in Archery." *Research Quarterly* 38: 544-49, December 1967. The writers found no adaptation of kinesthetic perception of a comfortable pull to the actual amount of pull in a comfortable draw.

Farrow, Andrea C. *Skill and Knowledge Proficiencies for Selected Activities in the Required Program at Memphis State University.* Doctor's thesis. University of North Carolina at Greensboro, 1970. Four ends from 10 yards and four ends from 20 yards comprised the archery skill measure. It was deemed in the acceptable range according to the preset standards of reliability (.80 or above) and validity (.70 or above). A multiple-choice knowledge test was also developed.

Gibbs, Marilyn J. *The Effects of Participation in Archery on the Development of Arm and Shoulder Girdle Strength.* Master's thesis. Iowa City: University of Iowa, 1969. After eight weeks of archery instruction, significant gains were achieved in all pulling action as measured by a hand dynamometer with a push-pull attachment and a cable tensiometer. Gains in pushing actions were nonsignificant. Correlations between archery performance scores and pulling strength were low but significant.

Goldman, Howard. *The Effect of Variations of Methods of Shooting and of Distances on the Achievement in Archery for Male College Beginners.* Doctor's thesis. Bloomington: Indiana University, 1962. After four weeks of instruction, students shot 30 arrows from 30, 40, 50, and 60 yards. Only at the 30-yard distance was a significant difference found because of method of shooting. At this distance, the bow sight and the point of aim methods were superior to the instructive method.

Grebner, Florence D. "Effectiveness of Two Methods of Attaining a Full Draw by Beginning Archers." *Research Quarterly* 40: 50-54;

March 1969. For high school freshman girls, no significant difference was found between the mean score of the final round for students using the push method and for students using the pull method.

Moore, Sylvia L. *The Effect of Homogeneous and Heterogeneous Grouping on Motor Skill Learning of College Women in Elementary Archery.* Master's thesis. Eugene: University of Oregon, 1966.

Murff, Thelma Elizabeth. *An Evaluative Study of Basic Skills and Sequence of Instruction Used in Women's Beginning Archery Classes in a Selected Number of State Colleges and Universities.* Master's thesis. Laramie: University of Wyoming, 1965. A course of study of basic skills was developed based on the ratings and sequences suggested by a jury of experts.

Porter, Sharon Sue. *A Comparison of Two Methods of Teaching Archery.* Master's thesis. Amherst: University of Massachusetts, 1966.

Ray, Robert Glenn. *Relationship Between Ocular Muscle Balance and Motor Fitness in Men.* Doctor's thesis. Athens: University of Georgia, 1971. Although the values of ocular muscle balance were related significantly to motor fitness, they could not be used as an accurate index of motor fitness.

Roberts, Suzanne L. *A Study To Determine Whether College Women Archers Develop Significant and Consistent Grouping Patterns.* Master's thesis. Carbondale: Southern Illinois University, 1968. From 20, 30, and 40 yards and during a Junior Columbia round, at least 50% of the students had significant patterns when the target face was divided into quadrants and octants. At 30 yards, the patterns were consistent.

Schneider, Esther Lucile. *An Electromyographic Study of the Trapezius Muscle During the Act of Holding in Target Archery.* Master's thesis. Philadelphia: Temple University, 1967.

Schumm, Maryanne M. *The Effectiveness of a Selected Aiming Method in Archery for Use with Cross-Dominant Subjects.* Master's thesis. University of North Carolina at Greensboro, 1966. When comparing use of an eye patch to no eye patch, no significant difference in performance was found.

Singer, R. N. "Transfer Effects and Ultimate Success in Archery Due to Degree of Difficulty of the Initial Learning." *Research Quarterly* 37: 532-39; December 1966. No significant differences in achievement or transfer were found among three archery groups that began shooting from 10 yards, 25 yards, and 40 yards respectively.

Slayden, Janeil. *An Experimental Investigation of the Effect of Sequence of Distances on the Achievement in Archery for Female*

College Beginners. Master's thesis. Boulder: University of Colorado, 1966. No significant differences on the final test were found between two groups of beginners who practiced from 50, 40, and 30 yards and 30, 40, and 50 yards respectively.

Stevenson, Carol Lynn. *The Effect of Practice Task Difficulty on Transfer of Training in Target Archery.* Master's thesis. University Park: Pennsylvania State University, 1967. No significant difference in performance was found when comparing the practice at the test distance between the easy-to-difficult sequence groups and the difficult-to-easy sequence group.

Szlosek, Joseph E. *A Comparative Study of Two Instinctive Aiming Methods Used in Teaching Beginning Archery.* Master's thesis. Springfield, MA: Springfield College, 1971. Neither a predraw gap method nor a three-finger-under method of shooting proved to be superior to the other in accuracy measures.

Wilcoxon, Betty Jane. *The Effects of Near Versus Far Distance Practice Sessions on the Achievement of Archers.* Master's thesis. California State College, 1969. Female archers who practiced from the 30-yard line scored significantly higher on two Columbia Rounds than did those who practiced from the 50-yard line. On the basis of mean scores, inexperienced male archers proved to be equal or superior to experienced female archers.

Zabick, Roger M., and Jackson, Andrew S. "Reliability of Archery Achievement." *Research Quarterly* 40: 254-55; March 1969. Modified Chicago and Flint Rounds were found to be reliable measures to evaluate achievement of college men.

Archery Visual Aids

LELA JUNE STONER

Lela June Stoner received her B.Ed. degree from Washburn University in Topeka, Kansas, and her M.A. and Ph.D. degrees from the University of Minnesota. Currently she is an assistant professor of physical education at the University of Minnesota where she also serves as audiovisual coordinator for the School of Physical Education. She has taught archery in camps and at the college level.

There are a number of source books that list films available for purchase and rental. To identify the newest media materials, it is helpful to utilize the single most used listing, which is provided by National Information Center for Educational Media. Their publications are as follows:

Index to Video Tapes
Index to 35mm Educational Filmstrips
Index to 8mm Motion Cartridges
Index to 16mm Educational Films
Index to Overhead Transparencies.

These publications should be available in most college and university libraries, public libraries, and the central administration media library for school districts.

Prices listed for the following visual aids are subject to change. In general, commercial companies rent for a rate higher than university media centers. Numbers in parentheses refer to film distributors listed. In addition, each film has been given a code as to the age level for which it is appropriate (p-primary, i-intermediate, j-junior high, s-senior high, c-college, a-adult, t-teacher education).

ABC – Polar Bear and Mule Deer. 16mm, 25 min., sd., color. Rental $10 (8). Watch Fred Bear bowhunt for polar bear in the Arctic and mule deer on the Jicarilla Apache Indian reservation in New Mexico. Motivational film. j-s-c-a

Archery. Set – 4 8mm film loops, 4 min. ea., si., color. Sale $24.95 (9). Provides basic knowledge about shooting, equipment, techniques, and safety. Split-screen techniques show the effect of adjustments made by archer. I. Basic Skills, II. Nock, Anchor, Release; III. Aim: Pre-Gap Method; IV. Aiming: Sight Method. (Produced 1969.) i-j-s-c-a-t

Archery for Beginners. 16mm, 12 min., sd., b & w. Rental $3.50 (12). Archery techniques are demonstrated for the beginning

archer. Ann Weber, 1940 Women's Champion, demonstrates stance, nocking, aiming, draw, and so on. (Produced 1942.) j-s-c-a

Archery for Girls. 16mm, 10 min., sd., color. Rental $2 (13). Demonstrates the proper fundamentals for the beginning archer; stance, nocking the arrow, draw, aim, and release. (Produced 1949.) i-j-s-c

Archery Fundamentals. 16mm, 11 min., sd., color, b & w. Rental $3 up (3) (4) (13) (14). Both men and women archers demonstrate basic archery techniques and safety measures. Close-up and slow motion photography and animations clarify points. (Produced 1961.) j-s-c-a

Archery Instruction and Safety. 16mm, 10 min., sd., color. Rental $4.25 (1) (13). Fundamental safety techniques for the archer including stringing, draw, release, and stance. (Produced 1957.) j-s-c-a

Archery Today. 16mm, 22 min., sd., color. Rental $10 (8). Newest Fred Bear film shows technique and methods a safe bow hunter should practice. (Produced 1972.) j-s-c-a

Arrow for a Grizzly. 16mm, 12-1/2 min., sd., color. Rental $5 up (8) (11). A pack train expedition through Yukon Territory hunting for grizzly with bow and arrow. Stop action and slow motion show the details. Motivational film. j-s-c-a

The Art of Archery. 16mm, 12 min., sd., color. Rental $2.50 up (6) (11). Step-by-step sequence of stringing a bow, gripping, aiming, and shooting for the beginning archer. (Produced 1957.) j-s-c-a

Back Country Bowhunt. 16mm, 25 min., sd., color. Rental $10 up (8) (11). From the interior of British Columbia, Fred Bear and a party of bowhunters pursue a variety of big game. Motivational film. j-s-c-a

Badlands Bucks. 16mm, 12-1/2 min., sd., color. Rental $5 up (8) (11). Fred Bear hunts with bow and arrow along the Missouri River in North Dakota. Motivational film. j-s-c-a

Bowfishing Fun. 16mm, 12 min., sd., color. Rental $2.50 (5) (7) (10). Fred Bear demonstrates proper equipment and techniques for surface shooting and at underwater targets. Shooting is filmed in the marshes of Lake Erie. (Produced 1957.) j-s-c-a

Bowhunter's Safari. 16mm, 12 min., sd., color. Rental $2.50 (6) (8) (11). Close-up pictures of wildlife in a bowhunting adventure in Africa. Fred Bear tests his ability with a bow against antelope. Motivational film. (Produced 1957.) j-s-c-a

Bow Hunting by the Sea. 16mm, 14 min., sd., color. (5) Lee Wulff uses bow and arrow to hunt caribou and moose in Newfoundland. Shows how they scout the territory from the air and stalk by land. Motivational film. (Produced 1961.) j-s-c-a

Bows and Arrows. 16mm, 10 min., sd., b & w. Rental $4.50 (10).

Champion Russ Hoogerhyde gives lessons in the bow and arrow including the game "Roving" and skills necessary to match an archer against a golfer. (Produced 1944.) j-s-c-a

The Bowyer's Craft. 16mm, 12-1/2 min., sd., color. Rental $10 (11). A camera-eye view of the step-by-step production of a laminated composite bow. j-s-c-a-t

B'wana Bowman. 16mm, 12 min., sd., color. Rental $2.50 up (6) (8) (11). Rare close-ups of many African animals shown while stalking a bull elephant with bow and arrow. Win Hegley's safari to the Belgian Congo. Motivational film. (Produced 1957.) j-s-c-a

Canadian Grizzly Hunt. 16mm, 16 min., sd., color. Rental $5 (8). Fred Bear hunts in British Columbia stalking a 650-pound bear. (Not to be used for TV or paid viewing.) Motivational film. j-s-c-a

Fins, Feathers and Fur. 16mm, 25 min., sd., color. Rental $10 (8). Three stories in one film – bowhunting pheasant and bobcat and bowfishing off the Florida Keys. Motivational film. j-s-c-a

1965 FITA World Championship Archery. 16mm, 20 min., sd., color. Rental–free (7). World Archery championship in Sweden, 1965. j-s-c-a-t

1969 FITA World Championship. 16mm, 20 min., sd., color. Rental–free (7). 25th World Archery Championship, Valley Forge, 1969. j-s-c-a-t

Grubstake Bowhunt. 16mm, 12-1/2 min., sd., color. Rental $5 up (8) (11). Caribou are the prime target in this Alaskan bowhunting adventure. Motivational film. j-s-c-a

Hunting the Hard Way. 16mm, 20 min., sd., color. Rental $5 (10). Howard Hill takes his bow and arrow to the Rockies to hunt mountain lion. Motivational film. j-s-c-a

Introduction to Field Archery. 16mm, 10 min., sd., color. Rental $4.25 (13). A family of four learns the game of field archery. (Produced 1958.) j-s-c-a

Kaibab Bucks. 16mm, 12-1/2 min., sd., color. Rental $5 up (8) (11). Absorbing account of the first bow and arrow season in Arizona's Kaibab Forest with Fred Bear, master bowhunter. Motivational film. j-s-c-a

Kodiak Country. 16mm, 25 min., sd., color. Rental $10 (8). Colorful Alaskan adventure in bowhunting for the huge Kodiak bear. Motivational film. j-s-c-a

Land of the Tiger. 16mm, 25 min., sd., color. Rental $10 (8). Fred Bear searches with bow and arrow for the Bengal tiger in exotic India. Motivational film. j-s-c-a

The Mankillers. 16mm, 20 min., sd., color. Rental $5 (10). Howard Hill armed with bow and arrow takes to shark-infested waters off Key Largo, Florida. Motivational film. j-s-c-a

Men's Archery. Set–3 58mm film loops, 4 min. ea., si., color (2).

Hardy Ward, World's Archery Champion, demonstrates in regular and slow motion. I. Siance, Nocking the Arrow; II. Draw, Aim and Hold; III. Release and Follow Through. (Produced 1971.) j-s-c-a

Mozambique Game Trials. 16mm, 25 min., sd., color (8). Follow Fred Bear in Portuguese East Africa as he stalks big game. Motivational film. j-s-c-a

North to Adventure. 16mm, 30 min., sd., color. Rental $10 up (8) (11). Bowhunting adventure in Northern British Columbia with Fred Bear. Climax is stalking a huge Stone sheep ram. Motivational film. j-s-c-a

The Oldest Game. 16mm, 28 min., sd., color. Rental $10 up (8) (11). Fred Bear hunts white tail deer in the Allegheny Mountains of Pennsylvania. Motivational film. j-s-c-a

Prairie Pronghorn. 16mm, 12-1/2 min., sd., color. Rental $5 up (8) (11). Wyoming is the scene for this bowhunting adventure with Fred Bear, master bowhunter. Motivational film. j-s-c-a

A Return to the Olympics. 16mm, 20 min., sd., color. Rental–free (7). Archery, a sport returned to the Olympics.

Straight as an Arrow. 16mm, 20 min., sd., color. Rental–free (7). Technical shots shown in slow-motion photography.

Trophy Elk. 16mm, 12-1/2 min., sd., color. Rental $2.50 up (6) (8) (11). Fred Bear stalks elk in Wyoming with bow and arrow. Motivational film. (Produced 1955.) j-s-c-a

Women's Archery. Set–3 S8mm film loops, 4 min., si., color. Sale $19.95 ea. (2). Doreen Wilber, 1972 Olympic Gold Medal winner, demonstrates I. Stance-Nocking the Arrow; II. Draw-Aim and Hold; III. Release and Follow Through. j-s-c-a-t

Year of the Buffalo. 16mm, 25 min., sd., color. Rental $10 (8). Fred Bear returns to Portuguese East Africa to hunt the Cape Buffalo. Motivational film. j-s-c-a

Film Distributors

1. Harold C. Ambrosch Productions, P.O. Box 3, Rancho Mirago, CA 92270.
2. The Athletic Institute, 705 Merchandise Mart, Chicago, IL 61654.
3. Bailey Films Inc., 6509 DeLongpre Ave., Los Angeles, CA 90028.
4. BFA Education Media, 2211 Michigan Ave., Santa Monica, CA 90404. (centers also available on a regional basis)
5. Canadian Travel Film Library, 680 5th Ave., Suite 819, New York, NY 10019.

6. Michigan State University, Instructional Media Center, East Lansing, MI 48823.
7. Jas. D. Easton, Inc., 7800 Haskell Ave., Van Nuys, CA 91406.
8. Grayling Film Service, R. R. #1, Grayling, MI 49738.
9. Holt, Reinhart and Winston, Inc., Media Dept., Box 3670, Grand Central Station, New York, NY 10013.
10. ROA's Films, 1696 North Astor St., Milwaukee, WI 54202.
11. Sportlite Films, Inc., 20 N. Wacker Dr., Chicago, IL 60606.
12. University Education and Visual Arts, 221 Park Ave. So., New York, NY 10003.
13. University of Illinois, Visual Aids Service, Div. of University Extension, Champaign, IL 61820.
14. University of Michigan, Audio-Visual Education Center, 416 Fourth St., Ann Arbor, MI 48103.

OFFICIAL RULES FOR ARCHERY TOURNAMENTS

Approved by the National Archery Association of the United States

RULE 1. ROUNDS

Section 1. Target competition can be based on either individual or team scores or both. Any one of the rounds may be used for individual or team competition. The rounds are –

a. American Round[1] – 30 arrows from 60 yards, 50 yards and 40 yards respectively.
b. Junior American Round – 30 arrows from 50 yards, 40 yards and 30 yards respectively.
c. Columbia Round – 24 arrows from 50 yards, 40 yards and 30 yards respectively.
d. Junior Columbia Round – 24 arrows from 40 yards, 30 yards and 20 yards respectively.
e. Scholastic Round[1,2] – 24 arrows from 40 yards and 30 yards respectively.
f. Junior Scholastic Round[1,2] – 24 arrows from 30 yards and 20 yards respectively.
g. Range Round[1,3] – 60 arrows from a single distance – either 50 yards, 40 yards, 30 yards or 20 yards – on regulation targets.
h. Miniature Round[1,3] – 60 arrows from 15 yards on a 2-foot target scaled to the same proportions as the regulation target.

RULE 2. EQUIPMENT

Section 1. Targets shall be –

a. Of standard size (48 inches) in diameter, divided into a central disc, 9 3/5 inches in diameter, and four concentric rings, each 4 4/5 inches in width, painted respectively, from within out, gold, red, light blue, black and white.
b. In sufficiently good condition so that arrows will not pass through them.
c. Set on standards of soft wood.
Note: Targets of baled straw may be built up from the ground and not placed on a standard.
d. Placed on a straight line parallel to the shooting line and set so that the centers of the golds are 51 inches from the ground.[4]

---

[1] Not official rounds of NAA.
[2] Recommended for advanced coeducational groups only.
[3] Rounds designed particularly for school use.
[4] Rounds designed particularly for indoor shooting.
[4] This rule must be complied with in championship events. For events other than championship, the centers of the golds need not be within the stated tolerances.

e. Slightly tilted back at the top.
f. Securely anchored so that they will not be blown or pushed over.
g. Numbered or lettered.
h. Covered with a face in sufficiently good condition so that there will be no question as to the value of hits.
i. Separated by at least 10 feet, center to center; preferably 15 feet.

Section 2. The outdoor range shall be –
a. Level and sodded with grass closely cut; there must be sufficient area back of the targets for arrows that miss the targets to land safely.
b. Free from obstruction in line with the flight of the arrow.
c. Clearly marked with lines showing accurate distances from the target at which archers are to shoot. These lines must be parallel to the line of the targets.
d. Roped off at least 10 yards back of the shooting line and at the sides to keep spectators from the shooting area.
e. Clear of obstructions on the shooting line. *Note:* Archers may use a ground quiver while they are shooting.

Section 3. The indoor range shall have a backdrop to protect the arrows that miss the target. (See also Section 2 b, c, d, and e of Rule 2 above.)

Section 4. Any type of bow except a crossbow may be used.

Section 5. Any type of sight or aiming device attached to the bow may be used. Any type of point of aim may be used which does not protrude more than six inches above the ground and does not interfere with shooting or scoring.

Section 6. A bow string may be made up of any number of strands of the material chosen for the purpose, with a center serving to accommodate the drawing fingers, a nocking point to which may be added serving(s) to fit the arrow nock as necessary. String shall be one color only. A serving of one other color may be used. Two attachments may be used.
a. The kisser button not to exceed ½ inch in total diameter and ½ inch in total length.
b. The string peep not to exceed 1¼ inch in total length and ½ inch in total diameter.

Section 7. An arrow rest which can be adjustable, a plunger, an arrowplate and draw check indicators may be used on the bow provided they are not electric or electronic and do not offer an additional aid in aiming.

Section 8. Stabilizers on the bow are permitted provided they do not –
a. Touch anything but the bow.

b. Represent any obstacle to other archers as far as place on the shooting line is concerned.
c. The number of stabilizers mounted shall not exceed four (4). (The term "stabilizer" shall also include counterbalancing weights.)

Section 9. Any type of arrows, except those that would unreasonably injure the target or target face, may be used.

Note. The arrows of each archer must have a distinctive mark, usually identified by the colored crest.

Section 10. A clicker may be used providing it does not extend above the arrow diameter.

Section 11. Field glasses, telescopes and other visual aids may be used between shots for spotting arrows as long as the archer does not leave the shooting line.

RULE 3. OFFICIALS AND THEIR DUTIES

Section 1. Lady paramount[1] is the presiding official of the ladies shooting line, and is selected by the hostess club. Her duties are –

a. To examine the shooting field and see that it satisfies. (Rule 2, Sections 1, 2, and 3)
b. To see that all rules herein stated are enforced.
c. To check target assignments, making sure that each archer has been correctly assigned a target. (See Rule 5, Section 1 b)
d. To see that all preliminary practice is properly supervised either by herself or an assistant.
e. To call together the target captains before the last practice end is announced to see that they are instructed in their duties and to answer any questions they may have concerning tournament regulations.
f. To maintain order and congeniality on the shooting line.
g. To make adjustments for complaints registered by the target captains.
h. To be sure there are two ends of three sighter arrows each or one end of five sighter arrows, followed without undue interruption by the beginning of scoring for the round.
i. To control the shooting with a whistle. One blast on the whistle will be the signal for shooting to start. Two blasts on the whistle will be the signal for archers to move forward to score and collect arrows. A series of four or more blasts on the whistle will be the signal for all shooting to cease. If shooting is suspended during an

---

[1] Field captain is the presiding official over men's shooting lines and would have the same duties as outlined for lady paramount.

end for any reason, one blast on the whistle will be the signal for shooting to recommence.

j. The field officials shall control the shooting and ensure the observance of the 2½ minute time limit for shooting an end of three arrows or the 4½ minute time limit for shooting an end of five arrows.

k. To penalize an archer after repeated infraction of a rule which has been called to her attention by the target captain. For the first repetition after warning, the loss of the highest arrow of that end; for the second repetition, the loss of the end; for the third repetition, expulsion from the tournament.

l. To sign all scorecards at the end of the tournament as well as official results of mail and telegraphic meets.

m. To announce first, second and third places at the conclusion of the tournament.

Section 2. The target captain is the official presiding over the archers on one target. She is selected by that particular group of archers; normally she is the first in the order of assignment. Her duties are –

a. To see that each archer shoots in her turn.

b. To settle all local questions. *Note:* Appeals concerning her decision may be made to lady paramount, whose decision is final.

c. To draw the arrows from the target and announce their values to the scorers. (See Rule 6.)

d. To call lady paramount who shall (1) witness perfect ends and (2) make decisions on debatable questions.

e. To take an archer's place on the shooting line in the event of an unavoidable delay such as may occur when a bowstring breaks or other accident to equipment occurs. (See Rule 5, Section 11.)

Section 3. The scorers shall report and record each arrow's score on an official scoreboard and also record the total number of hits and scores for each end, group of ends, or range scores, and the total hits and scores for that round.

a. There shall be two scorers for each target selected by archers shooting on that target, normally the second and third girls assigned to that target.

b. They shall carefully check their records with each other at the conclusion of each end and round. (See Rule 6.)

RULE 4. DEFINITIONS OF TERMS

Section 1. An end shall represent six arrows shot consecutively by one archer. (A perfect end is an end of six consecutive shots that hit the gold.)

Section 2. A range is a term which applies to shooting a given number of ends from any one of the given distances in a round. Range score is the score for that range (or distance).

Section 3. A round is a term which applies to shooting a given number of consecutive ends (a range) from more than one given distance. *(Exception:* See Rule 1, Section 1.)

Section 4. Gold – the highest scoring area on the target face located in the center.

Section 5. Double scoring system – a system requiring two people to record the same scores on one target who check with each other, ensuring accurate scoring.

Section 6. Double round – shooting the same round twice.

RULE 5. TOURNAMENT REGULATIONS

Section 1. The hostess club shall –

a. Notify guest archers and teams of (1) the rounds to be shot, (2) date registrations are due and (3) the date and time of the tournament. *Note:* If the match is a telegraphic or mail meet, the hostess club must announce the date scores are due.
b. Make target assignments in the order registrations are received. (See Rule 5, Section 2.)
c. Prepare the shooting field as described in Rule 2, Sections 1, 2, and 3; provide a whistle, scorepads and pencils.
d. Engage the lady paramount.
e. Send results of the tournament to all clubs participating in mail or telegraphic meets.

Section 2. Target assignments – it is recommended that no more than four shall shoot at one target.

Section 3. Under the control of the lady paramount, two ends of three sighter arrows each or one end of five sighter arrows are permitted preceding the beginning of official scoring.

Section 4. Order of shooting

a. It is recommended that no more than two people shall shoot at the same time on one target, in which case each stands on the shooting line one pace to either side of a perpendicular from the gold.
b. Where the archers on a target are shooting in turn, it is customary for each archer to shoot three arrows and then yield her place to her target mates, and then in her turn shoot the other three arrows. If in the opinion of the field officials there is good reason, they may request archers to shoot six arrows at a time.
c. Archers shall shoot in the order their names appear on the scorecard.

Section 5. An archer shall stand so that she has one foot on each side of the shooting line. She shall also stand a minimum of 18 inches from the center of the target lane or a minimum of 18 inches from the boundaries.

Section 6. Shooting for each end begins at the signal from the lady paramount's whistle. At the completion of each end the whistle is the signal to go to the targets to score.

Section 7. When not shooting, archers must stay at least three yards back of the shooting line.

Section 8. A round which requires shooting from more than one distance is started from the greatest distance, after which archers move toward the targets to shoot from the next distance.

Section 9. Any attempt to annoy or confuse another archer is unsportsmanlike. If after a warning from the lady paramount the archer persists in being annoying, she may be disqualified by the lady paramount.

Section 10. An arrow leaving the bow shall be deemed shot if the archer, while standing where she has been shooting, cannot reach it with her bow.

Section 11. If for any reason an archer cannot take her place on the shooting line, and she has some arrows yet to shoot for that end, the target captain shall stand in her place to aid the lady paramount in determining when to blow the whistle.

Section 12. Shooting shall be stopped at any time upon four or more blasts from the lady paramount's whistle.

Section 13. The whole round must be shot in no more than two sessions to be counted as an official score. (It is to be understood there is to be no practice between sessions or before the second part of a round.)

Section 14. In case an arrow hits the target and hangs down across the face, thus being in danger of getting hit by another shot, the lady paramount shall sound four blasts on her whistle to stop all shooting and will see that it is placed securely into the target where it hit.

Section 15. While an archer is on the shooting line, she shall receive no assistance or information, by word or otherwise, from anyone, other than for the purpose of making essential changes in equipment. Field glasses, telescopes and other visual aids may be used between shots for spotting arrows.

Section 16. Foot markers may be used and left on the shooting line during the round provided they are embedded in the turf and do not extend more than ½ inch above the ground.

RULE 6. SCORING

Section 1. The double scoring system shall be used. (See Rule 3, Section 3a and Rule 4, Section 5.) A sample scoresheet is shown on page 76.

Section 2. Arrows in the official standard NAA five-colored target face shall be evaluated from the center out as follows: 10, 9, 8, 7, 6, 5, 4, 3, 2, 1 points.

Section 3. An arrow that cuts through two colors is given the higher value.

Note: An exception occurs when the target face or arrow has been touched before a decision has been made, in which case the arrow shall receive the lower value.

Section 4. Unless all arrow holes are suitably marked on each occasion when arrows are scored and drawn from the target faces, arrows rebounding or passing through the target face when witnessed by another competitor or a tournament official shall count 7 points when the scoring is 10, 9, 8, 7, 6, 5, 4, 3, 2, and 1, 4 points when the scoring is 5, 4, 3, 2, and 1.

Section 5. An arrow embedded in another arrow on the scoring face shall score the same as the arrow in which it is embedded.

Section 6. In the event of a tie in score, the results shall be determined as follows:

a. For individuals — the archer of those so tying with the greatest number of hits. If this is also a tie, then the archer of those so tying with the greatest number of hits in the highest scoring zone of the target face. (This provides for 10 points or 5 points.) If this is also a tie, then the archer of those so tying with the greatest number of hits in the second highest scoring ring of the target face scoring either 9 or 4 points. If this is also a tie, then the archers so tying shall be declared equal.

b. For Teams — the team of those tying, having the archer making the highest individual score. If this is also a tie, then to the team of those so tying having the archer making the second highest individual score. If this is also a tie, then the teams so tying shall be declared equal.

Section 7. Arrows must remain untouched until withdrawn by the target captain, or her deputy, in the presence of the scorers. Arrows withdrawn otherwise shall not be counted.

Section 8. Scoring and drawing shall be witnessed by all archers shooting on the target.

Section 9. In case a target falls over during an end, the archers on that target shall shoot the end over again.

Name	Audrey Bullett	Mary McEwen	Joan Ford	Nancy Hoag
Round	Jr. Col. Round	Jr. Col. Round	Jr. Col. Round	Jr. Col. Round
Date	May 20, 1974	May 20, 1974	May 20, 1974	May 20, 1974

At 40 yds.	Hits	Score	At 40 yds.	Hits	Score	At 40 yds.	Hits	Score	At 40 yds.	Hits	Score
9 7 7 7 5	5	35	9 5 5 3 3	5	25	9 9 7 7 5 3	6	40	7 7 7 5 5	5	31
9 7 7 7 7 5	6	42	7 5 5 5 3 1	6	26	7 7 7 5 5 5	6	36	7 7 5 5 1 1	6	24
9 7 7 7 7	5	37	5 5 1 1	4	12	7 7 7 5 3 1	6	30	7 7 7 7 5 5	6	38
9 9 7 7 7 7	6	46	9 5 3	3	17	9 9 7 5 5 5	6	40	9 9 9 7 7 3	6	44
	22	160		18	80		24	196		23	187
At 30 yds.			At 30 yds.			At 30 yds.			At 30 yds.		
9 7 7 7 7 5	6	42	9 9 7 5 5 3	6	39	9 9 9 9 9 7	6	52	7 7 7 7 5 3	6	36
7 7 7 7 7 5	6	40	9 7 7 5 5 5	6	38	9 9 9 9 9 7	6	52	9 9 7 7 7 5	6	44
9 9 9 9 5 5	6	46	7 7 7 7 3 3	6	34	9 9 7 7 7 5	6	44	9 9 9 7 7 5	6	46
7 7 7 5 5 5	6	36	7 7 5 5 5 3	6	32	9 9 9 9 9 7	6	52	9 9 7 7 7 7	6	46
	24	164		24	143		24	200		24	172
At 20 yds.			At 20 yds.			At 20 yds.			At 20 yds.		
9 9 9 9 7 7	6	50	9 7 7 7 7 1	6	38	9 9 9 7 7 1	6	42	9 7 7 7 7 7	6	44
9 9 9 9 9 9	6	54	7 7 7 7 5 3	6	36	9 9 9 9 9 7	6	52	9 7 7 7 7 5	6	42
9 9 9 9 9 7	6	52	9 7 7 7 7 5	6	40	9 9 9 9 9 7	6	52	9 9 9 7 5 5	6	42
9 9 9 9 7 7	6	50	9 7 7 5 5 3	6	34	9 9 9 9 7 7	6	50	9 9 9 9 7 7	6	50
	24	206		24	150		24	196		24	180
Total Score	70	530	Total Score	66	372	Total Score	72	576	Total Score	71	489
								Team Score		279 - 1933	

Sample scoresheet

Section 10. Unless each hit is separately itemized on the score-sheets, the score shall not be counted.

Section 11. If, in any end, an archer shoots more than the required arrows, she shall forfeit as many of the highest scoring arrows as the number of extra arrows shot.

Section 12. Any archer may check her score or that of another archer after the round is completed.

Section 13. A hit or hits made by an archer on a target not assigned to her shall not be counted.

Section 14. It is customary to draw the arrows having the highest value first.

Section 15. Equipment failures, mishaps or other occurrences not specifically covered in other rules shall not entitle an archer to repeat a shot unless the mis-shot arrow can be reached by the bow from the archer's position on the shooting line.

RULE 7. SAFETY RULES

Section 1. Always remember that the bow and arrow is a deadly weapon and conduct yourself accordingly at all times.

Section 2. Arrows should be nocked only on the shooting line, and only pointed in the direction of the targets when nocked.

Section 3. Never practice except under organized practice rules, unless you are absolutely sure there is not even a remote chance of an accident.

Note: Archers may not shoot at varying distances from different shooting lines nor engage in unauthorized practice, unless separated by the width of four target lanes.

Section 4. Be alert for unexpected children or even adults who may, through ignorance or thoughtlessness, suddenly be on the field.

Section 5. Do not hesitate to call attention to actions of other archers which you know are dangerous either to the archer or others.

Section 6. The part of the range in front of the shooting line is forbidden territory while others are on the shooting line.

Section 7. In drawing arrows from the target, be sure no one is behind you where they may be injured by sudden removal of an arrow. Stand at one side of the target when others are drawing.

Section 8. Inspect arrows to see that they are not cracked or damaged. *Arrows that are cracked should be broken — they cannot safely be repaired.*

Note: *Complete, up-to-date Official NAA Rules are available from Clayton B. Shenk, Executive Secretary, National Archery Association, 1931 Geraldson Dr., Lancaster, PA 17601.*

INDOOR ARCHERY RULES OF SHOOTING

THE INDOOR FITA ROUNDS

There are two indoor FITA Rounds: –

Round I	30 arrows shot from 18 metres
Round II	30 arrows shot from 25 metres
	for both Ladies and Gentlemen.

TARGET FACES

Description

a. There are for indoor archery two Standard circular FITA Target Faces 60 cm and 40 cm diameters. Both these faces are divided by a thin line into five concentric colour zones arranged from the centre outwards as follows: –

Gold (Yellow), Red, Light Blue, Black and White. Each colour is in turn divided by a thin line into two zones of equal width thus making in all ten scoring zones of equal width measured from the centre of the Gold:

3 cm on the 60 cm target face
2 cm on the 40 cm target face

Such dividing lines, and any dividing lines which may be used between colours, shall be made entirely within the higher scoring zone in each case. Any line marking the outermost edge of the White shall be made entirely within the scoring zone. The width of the thin dividing lines as well as the outermost line shall not exceed 2 mm on both the 60 cm and the 40 cm target faces.

The centre of the target face is termed the pinhole and shall be indicated by a small cross the lines of which shall not exceed 2 mm.

b. **Scoring Values and Colour Specifications:**
These are according to Article 701 (b).

c. **Tolerance of Measurements:**
The permissible variations in dimensions of the target face in each of the ten zones shall be measured by the diameters of each separate circle enclosing each of the 10 zones. The tolerance of each such diameter shall not exceed plus/minus 1 mm on both the 60 cm and the 40 cm target face; i.e., measured through the centres outwards: –

		Diameters 60 cm Face	Tolerance plus/minus	Diameters 40 cm Face	Tolerance plus/minus
Zone	10	6 cm	1 mm	4 cm	1 mm
	9	12	1	8	1
	8	18	1	12	1
	7	24	1	16	1
	6	30	1	20	1
	5	36	1	24	1
	4	42	1	28	1
	3	48	1	32	1
	2	54	1	36	1
	1	60	1	40	1

d. **Size of Target Faces at each Round:**
For the 18 metres Indoor FITA Round I the target face of 40 cm for the 25 metres Indoor FITA Round II the target face of 60 cm shall be used.

TARGET SET UP

The Centre of the Gold shall be 130 cm above the ground. If the 40 cm target faces are in two lines – one above the other, the centre of the Gold shall be 100 cm respectively 160 cm above the ground.

SHOOTING & SCORING

a. Each archer shall shoot his arrows in ends of three arrows each.
b. Scoring shall take place after each end of 3 arrows.

OTHER RULES & REGULATIONS

In all other aspects the Target Archery Rules of Shooting will apply with the exception of Article 704 (h) (i.e., the two and a half minute Time Limit for shooting three arrows may not be extended at Indoor Shooting).

If space does not permit a Waiting line then Article 702 (b) may be waived.

Notes:

1. Safety precautions behind the targets call for special attention.
2. Source of light whether natural or artificial and its effect on the target faces is important and should be considered.

INTERNATIONAL ARCHERY FEDERATION
TARGET ARCHERY RULES OF SHOOTING

Reprinted by Permission of the NAA

Art. 700 — THE FITA ROUND:

The FITA round consists of 36 arrows shot from each of the following distances:

90, 70, 50 and 30 metres for gentlemen
70, 60, 50 and 30 metres for ladies

Shooting shall be in one direction only, and will commence at the longest distance and finish at the shortest distance in the order set above.

A round may be shot in one day or over two successive days. If a round is shot over two days, the two longer distances shall be shot on the first day and the two shorter distances shall be shot on the second day. Two ends of three sighter arrows are permitted preceding the commencement of shooting each day. These are to be shot under the control of the field captain and shall not be scored.

In the event of a program, including a FITA round as well as some other rounds, the FITA round shall always be shot first.

Art. 701 — TARGET FACES:

Diagrams:	
122 cm. target face	80 cm. target face
Scoring Values:	
Gold (Yellow)	Inner Zone 10
	Outer Zone 9
Red	Inner Zone 8
	Outer Zone 7
Light Blue	Inner Zone 6
	Outer Zone 5
Black	Inner Zone 4
	Outer Zone 3
White	Inner Zone 2
	Outer Zone 1

Description: There are two standard circular FITA target faces, 122 cm. and 80 cm. diameters.

Both these faces are divided into five concentric color zones arranged from the center outwards as follows:

Gold (Yellow), Red, Light Blue, Black and White.

Each color zone is in turn divided by a thin line into zones of equal width, thus making in all ten scoring zones of equal width

measured from the center of the Gold: 6.1 cm. on the 122 cm. face, and 4.0 cm. on the 80 cm. face.

Such dividing lines, and any dividing lines which may be used between colors, shall be made entirely within the higher scoring zone in each case.

Any line marking the outermost edge of the white shall be made entirely within the scoring zone.

On Target Faces of 122 cm. a tolerance of measurement shall not exceed 3 mm in any one zone and 4 mm on the full 122 cm. diameter. On target faces of 80 cm. a tolerance of measurement shall not exceed 2 mm in any one zone and 3 mm on the full 80 cm. diameter.

For distances of 50 and 30 metres, the target face of 122 cm. diameters shall be used.

For distances of 50 and 30 metres, the target face of 80 cm. diameters shall be used.

Art. 702 — RANGE LAYOUT:

a. The range shall be squared off and each distance accurately measured from a point vertically beneath the Gold of each Target to the Shooting Line.
b. The Waiting Line shall be indicated at least five metres behind the Shooting Line.
c. Each buttress shall be set up at an angle of about 15 degrees.
d. The Center of the Gold shall be 130 cm. above the ground.

CONVERSION TABLE

Centimeter-Metres	*Yards*	*Feet*	*Inches*
1 Centimeter			0.3937
80 Centimeters			31.5
122 Centimeters			48.0
1 Metre	= —	3	3.37
5 Metres	= 5	1	4.85
30 Metres	= 32	2	5.10
50 Metres	= 54	2	0.50
60 Metres	= 65	1	10.20
70 Metres	= 76	1	7.90
90 Metres	= 98	1	3.30

Art. 705 — SHOOTING:

a. Each archer shall shoot his arrows in ends of 3 arrows each.
b. Excepting for persons who are permanently disabled, archers shall shoot from a standing position and without support, with one foot on each side of the shooting line.

c. An arrow shall not deem to have been shot if the archer can reach it with his bow without moving his feet from their position in relation to the shooting line.
d. While an archer is on the shooting line, he shall receive no assistance or information, by word or otherwise, from anyone, other than for the purpose of making essential changes in equipment.

Art. 706 — SCORING:

a. One scorer shall be appointed for each target.
b. At 90, 70 and 60 metres, scoring shall take place after every second end (6 arrows) at world championship tournaments, but at other tournaments scoring may take place after each end of 3 arrows or after every second end (6 arrows).

   At 50 and 30 metres, scoring shall always take place after each end of 3 arrows.
c. Scorers shall enter the value of each arrow on score sheets as called out by the archers to whom the arrows belong.

   Other archers on that target shall check the value of each arrow called out.

   Only arrows scoring 10 points shall be referred to as "Golds."
d. Neither the arrows nor the face shall be touched until all the arrows on that target have been recorded.
e. An arrow shall be scored according to the position of the shaft in the target face.
f. If more than 3 arrows (or 6 as the case may be), belonging to the same archer should be found in the target, only the 3 lowest (or 6 lowest, as the case may be) in value be scored.

   Should an archer be found to repeat this, he may be disqualified.
g. Should the shaft of an arrow touch two colors, or touch any dividing line between scoring zones, that arrow shall score the higher value of the zones affected.
h. Unless all arrow holes are suitably marked on each occasion when arrows are scored and drawn from the target, arrows rebounding from the target face shall not be scored.
i. An arrow hitting:
   1. The target and rebounding shall score according to its point of impact on the target, provided that an unmarked hole or mark made by the rebounding arrow can be identified.
   2. Another arrow in the nock and remaining embedded therein, shall score according to the value of the arrow struck.
   3. Another arrow, and then hitting the target face after defection, shall score as it lies in the target.

4. Another arrow, and then rebounding from the target, shall score the value of the stuck arrow, provided the damaged arrow can be identified.
5. The target face after rebounding off the ground, shall not score.
6. A target other than an archer's own target, shall not score.

j. The field captain will insure that, after scoring, no arrows are left in the targets before any signal is given for shooting to re-commence. If this inadvertently happens, the shooting shall not be interrupted.

An archer may shoot that end with other arrows, or make up the arrows lost after shooting over that distance has been completed. In such circumstances, the field captain shall participate in the scoring after that end, making sure that the arrows which remained in the target, are checked back to the archer's score card, before any arrows are withdrawn from the target.

k. In the event of an archer leaving arrows, e.g., on the ground in the target area, he may use others, provided he informs the field captain before shooting. The field captain shall exercise such checks as he deems fit in each circumstance.

l. An archer may delegate authority to score and collect his arrows to his team captain or to another archer on his own target.

m. Score sheets shall be signed by the scorer and the archer, denoting that the archer agrees with the score, and hereafter he may make no claim for any alteration of the score.

If the scorer is participating in the shooting, his score sheet shall be signed by some other archer on the same target.

n. In the event of a tie in score, the results shall be determined as follows:

1. For individuals:

The archer, of those tying, with the greatest number of scoring hits.

If this is also a tie, then the archer of those so tying with the greatest number of Golds (hits scoring 10 points).

If this is also a tie, then the archer of those so tying, with the greatest number of hits scoring 9 points.

2. For teams:

The team, of those tying, having the archer making the highest individual score.

If this is also a tie, then the team of those tying, having the archer making the second highest individual score.

If this is also a tie, then the teams so tying, shall be declared equal.

Adopted at the FITA (International Archery Federation) Congress, Stockholm, Sweden 1959, and amended Vasteras, Sweden, 1965.

(The above set of rules is incomplete. For complete rules for target and field archery, refer to *The Archer's Handbook*, published by the NAA, 1951 Geraldson Dr., Lancaster, PA 17601.)

NATIONAL FIELD ARCHERY ASSOCIATION OFFICIAL RULES*

Reprinted by permission of the National Field Archery Association.

Field Round Rules

Terms

Unit–A 14-target course including all official shots.

Round–Two such units, or twice around one.

Double Round–Two complete rounds.

Out–First unit to be shot in a round.

In–Second unit to be shot in a round.

Stake–Shooting position.

Face–Target face.

Butt–Any object against which a face is placed.

Shot–This term in connection with the stake number, i.e., "fourth shot," shall be used in referring to the different shots on any course.

Spot–Aiming center.

Timber–Warning call to other archers who may be in the danger zone, announcing that you are ready to shoot.

Faces

1. Four face sizes shall be used:
   a. A 24-inch face with a 12-center bull and a 4-inch spot.
   b. An 18-inch face with a 9-inch bull and a 3-inch spot.
   c. A 12-inch face with a 6-inch bull and a 2-inch spot.
   d. A 6-inch face with a 3-inch bull and a 1-inch spot.

   The outside ring shall be black. The bull shall be white and the spot shall be black.

   Animal targets bearing these official round faces may be used in which case the faces need not be painted, only outlined, but aiming center or spot must be plainly visible. Spot must be painted some color sharply contrasting with target color. This same spot and ring target is official without animal silhouette.
2. All butts must be so placed that the full face is exposed to the shooter.
3. A standard unit shall consist of the following 14 shots:

   (4 arrows at each distance)

   15, 20, 25, and 30 yards at a 12-inch face
   40, 45, and 50 yards at 18-inch face
   55, 60, and 65 yards at 24-inch face

*See *Constitution, By-Laws, and Policy of the National Field Archery Association*, 1974 ed. NFAA, Route 2, Box 514, Redlands, CA 92373. (Note: Revised each year and available on April 1. $1.00.)

and the following four position shots, each arrow to be shot from a different position or at a different target:

35 yards at 18-inch target, all from the same distance, but from different positions or different targets
30, 35, 40, and 45 yards at 18-inch target
50, 60, 70, and 80 yards at 24-inch target
20, 25, 30, and 35 yards at 6-inch target.

4. In laying out the course, any order may be used as the official shooting order on any four-position shot. The prescribed distances must be adhered to without variation.
5. A range, to be official, must be approved by the National Field Archery Association (see Official Handbook for construction of roving courses).

Scoring

Bullseye, including spot – 5 points. Outer circle – 3 points.

Shooting Rules

1. Any kinds of bow, except a crossbow, and any kind of arrow, except broadheads, may be used.
2. The status of doubtful arrows shall be determined before drawing any arrows from the target.
3. The target captain shall be the final judge of all disputed arrows.
4. An arrow shaft cutting two rings shall be scored as being in the ring of greater value. The outer line of the field archery target is outside the scoring field. For that reason the arrow shaft must cut the line so that no color of the line can be seen between arrow shaft and scoring field before a hit may be counted. The same is true for the inner line between the two scoring circles.
5. Skids or glances into the target shall not be counted.
6. Arrows passing through the face, but still in the butt, may be pushed back and scored as a hit in the circle through which they went. This does not mean that they may be withdrawn and then stuck back through the target.
7. Witnessed bounceouts believed to have hit the target in the scoring area will be reshot. Arrows passing through the target in the scoring area will be scored as witnessed by the other shooters in the group.
8. All ties shall be decided by shooting the first three targets. If a tie still exists after three targets, continue from target to target until the tie is broken.

9. No archer may practice on any shot of a course to be used for tournament shooting later the same day. Special practice targets should be supplied.
10. An archer who shoots arrows at the target in excess of the prescribed number shall lose the arrow or arrows of higher value in all NFAA rounds.

NEW PUBLICATIONS IN GIRLS AND WOMEN'S SPORTS

WOMEN'S ATHLETICS: COPING WITH CONTROVERSY

This publication examines the many concerns raised as more and more women take part in athletics, including women's rights, coed facilities, equality in hiring of women professionals and equality in sports programs. Contributors include such knowledgeable athletes, coaches, administrators, researchers and professors as Olga Connolly, Nell Jackson, JoAnne Thorpe, Margaret Dunkle, Mary Roland Griffin and Sue Durrant. 1974. 108 pp. (243-25508) $3.25

DGWS RESEARCH REPORTS II

The second volume in a series of research reports designed to provide the practitioner with scientific evidence on which to base decisions relating to programs of physical activity and athletics for girls and women. The content is applicable to all levels and can be easily understood by the person without a background in research and statistics. Some of the specific topics covered in this volume are femininity and achievement, female aggression, familial influence, stress conditioning, ability prediction, and iron deficiency. 1973. 120 pp. (243-25472) $3.25

PHILOSOPHY AND STANDARDS IN GIRLS AND WOMEN'S SPORTS

An indispensable guide for those who administer, feed and participate in sports programs for girls and women. Covers the nature, value, implementation, conduct and evaluation of sports programs as they relate to the leader, the administrator, the official and the participant. Includes policy statements and guidelines on interscholastic and intercollegiate competition. Rev. 1973. 66 pp. (243-25484) $2.50

Order from AAHPER Publications-Sales, 1201 16th St., N.W., Washington, D.C. 20036.

Orders for 10 or more copies of a single title are eligible for a 20% discount.

Schools, institutions, libraries and organizations may elect to be billed IF their order is submitted on an official purchase order form and amounts to a minimum of $10.00. Orders from individuals must be accompanied by payment (make check payable to AAHPER).

NAGWS GOLF COMMITTEES

1972-74

ANDREA HAUGE, *chairman*, R.R. 1, Box 92C, Houghton, MI 49931
DODDY MICHALSON, *past chairman*, 1436 View St., Moscow, ID 83843
MARGO ANDERSON, 908 18th St., S.W., Austin, MI 55912
FLORENCE BERRY, Maroa-Forsyth High School, Maroa, IL 61756
G. JEAN CERRA, Stephens College, Columbia, MO 65201
RUTH SPARHAWK, University of Southern California, Los Angeles 90007
TONYA TOOLE, Pennsylvania State University, University Park 16802
CHARLOTTE WEST, Southern Illinois University, Carbondale 62901 (Associate Member)
KATHRYN WRIGHT, Robert E. Lee High School, Baytown, TX 77520
FAY YOUELLS, University of Maryland, College Park 20742

1974-76

G. JEAN CERRA, *chairman*, Stephens College, Physical Education and Recreation Dept., Columbia, MO 65201

EDITORIAL COMMENT

I want to express my appreciation to the Golf Committee for their persistent efforts to provide material for this *Guide* which would be helpful and encouraging to the teacher, coach, and student of golf. The committee has made a special effort to include *new* ideas for teaching, testing, and motivating the student.

A special thanks goes to Jody Davenport, our SGOR supervisor, whose patience and attention to our needs was unfailing.

Our wishes for a successful and rewarding term go to Jean Cerra, the next *Guide* chairman.

ANDREA HAUGE
Chairman, 1972-74

Editor's note: The following three articles are examples of self-directed or programed learning. They are based on the assumption that the student learns most efficiently when he can make choices about how to learn and can proceed at his own pace.

A Contract for Golf

DODDY MICHALSON

Doddy Michalson received her B.A. degree from St. Olaf College in Northfield, Minnesota, and her M.S. degree from the Pennsylvania State University. She is currently a graduate student at the University of Idaho in Moscow. Doddy Michalson is past chairman of the Golf Guide committee.

The world of teaching is undergoing many changes. Just as the factory whistle is giving way to more flexible time schedules, the schools are trying out methods for helping each student to learn more efficiently. The variety of attempts to improve teaching today have in common the desire to place more responsibility on the student, to allow for differences, and to make learning more tailored to the individual than has been the case in previous years.

It seems suitable that golf, an individual sport, should be taught in ways that emphasize each individual's aims and abilities. One way to teach important, basic skills and to allow for individual differences, plus place increased responsibility on each student, is by the use of a "contract."

When a teacher draws up a contract, she must consider the variables that are a part of her style of teaching and her situation. For example, she will assess what she wants to include in her instruction. She must keep in mind how much time can be devoted to golf, what equipment is available, and what indoor and outdoor space can be used. Therefore, each contract will have its own characteristics, tailored to each set of teaching circumstances. In addition, the parts of the contract that are most flexible and allow for choice by the students of related activity or creative tasks will be equally suited to each situation. It follows that when increased responsibility is assumed by the student, she must know quite clearly in advance what it is that she must do. She must know what "behavior" the teacher expects and how she may complete the contract satisfactorily.

Name _____

A GOLF CONTRACT Part I (minimum requirement)	Possible points	Student's Contract
Basic Swing Woods Irons	30	
Putting	10	
Etiquette	15	
Play____holes	20	
Part II		
Option 1 Learning off the course	5-10	
Option 2 Golf as a lifetime sport	5-10	
Option 3 Psychological factors in learning and playing	5-10	
Option 4 Additional play	5-10	
Option 5 (Student's selection approved by teacher)	5-20	
Total		

Figure 1.

In Figure 1 the author suggests a contract for golf teaching. The following objectives were used in the organization of Part I:

A. To acquire basic facts and information about the swing, the clubs and their uses, and essentials of the game.

Golf is fun to play and can easily be fun to learn. In order to promote this goal, testing of basic facts and information could be done in a way to minimize anxiety and competition among students. After a minimum level of achievement is determined by the teacher, the students could take a test on each level until they "pass" the level. A second test on each level (for those who do not pass the first time) could vary in its form, though it would ask the same type of information. Another method of testing

would be to give a pretest to the student. She could then test herself and take a similar final test when ready.

B. To practice all basic skills.

Many check lists and descriptions of the golf swing are available to teachers. In addition, videotapes, filmstrips, movies, and a gamut of audiovisual methods can supplement instruction. Just as the teacher helps students learn the swing, students can help each other. Points can be given for such cooperative teaching. The contract plan also encourages conscientious practice in class, since different levels of skill can be recognized as starting points and individual progress can be assessed.

C. To acquire knowledge of the game's rules and etiquette.

Golf has an interesting history. Much of its tradition springs from the British world of courtesy and tact. Though Americans approach the game more casually than did their European ancestors, the fundamental structure of rules and etiquette remains. Testing, again, can emphasize acquiring at least a minimum of information.

D. To promote the student's playing on a course.

Access to a course, funds for playing, and student time vary widely from school to school. Each teacher, therefore, must allocate points for play according to what is possible in her situation. As much play as is possible under the guidance of the teaching-learning environment is undoubtedly ideal. Students may be either motivated to practice or frightened by their experience. The beginner's anxiety or the novice's discouragement are factors the teacher can help deal with before the student leaves the golf class.

It is extremely important that the teacher specify the performance level or behavior that she feels is adequate in terms of each objective. For instance, what will signify a knowledge of basic facts and information? What kind of swing must the student have, and how much should she practice? How will the student know when she has acquired knowledge of the rules and etiquette? How often must she play on the course?

Part II of the contract shown in Figure 1 contains options for the students. All teachers have the common challenge of motivating their students and helping them to retain the information they acquire. When the students can involve themselves increasingly in learning the skill and apply it in their own way in practice and play, the chances of their retaining information increases.

In the optional section of the contract are opportunities for each student to choose according to her own special interest and ability. Not everyone likes to write. Some like to play above all else.

Creativity takes many forms. There are dozens of possible tasks from which the student may choose, to supplement her learning of the basic game. The suggestions below are a small sample:

A. Learning about golf off the course.

By designing or creating new ways of learning about golf off the course, a student of golf would begin thinking of the game in an innovative way. An example of this option might be a study of putting through golf literature or discussions with golfers, which then could be applied on a home-carpet putting surface or a practice green.

B. Golf as a lifetime sport.

Lifetime sports are important in contemporary physical education, and golf is a classic lifetime sport! By thinking about her lifetime of activity, each student could anticipate both the pleasure golf can give and some of the obstacles she must overcome in order to play.

C. Psychological factors in learning and playing.

Some roadblocks that golfers encounter are psychological. The classroom or gym and the golf course are sometimes two different situations and have different ramifications for the golfer. Distractions are multiplied on a course, making the ability to concentrate more difficult than in a limited practice setting. People often like to play with others of a certain personality type. Some react well to competition while others do not. An awareness of one's psychological framework in regard to golf and one's motivation for learning the game might contribute toward enjoyment of play.

D. Additional play.

For the student who especially enjoys playing and can invest the time and money in doing so, it may be an interesting experience to play with persons of various ages. Such an effort would help the student to understand better the problems persons of different ages have in playing and could generate a vision of the possibilities of a lifetime of playing.

Schools have various grading systems, so the way the contract is scored and graded must be integrated with the existing system. A pass-fail system, whereby a student must reach a minimum number of points, is one possibility. Or the traditional scale whereby 90-100 is A, 80-89 is B, 70-79 is C, and below 70 is D could be used.

The contract could be used in nongraded systems such as the YWCA, recreational programs, and other voluntary organizations, as well as in schools. Each member of the group could decide what she would like to stress in learning the game. The leader must be flexible in this case and available to members for a variety of needs.

Encouragement is often as important as accurate analysis of problems with the swing for older persons learning the game.

For all ages and personality types, an individualized program such as that offered by a contract can be valuable in helping prospective players learn what golf can mean to them and how to develop the skills necessary for play.

A Videotape for Learning the Golf Swing Using the TOTE Model

TONYA TOOLE

Tonya Toole received her B.S. degree from Miami University of Ohio and her M.S. degree from the University of Wisconsin. She has competed on state and national levels and taught golf in club, community recreation, and adult education settings as well as at workshops and clinics. Currently, she teaches at Pennsylvania State University.

Teachers everywhere are searching for ways to apply new learning ideas to their own instructional environment. With increased emphasis on the students' need to know what behavioral change constitutes learning and with increased awareness of the need to individualize learning situations, the teacher of motor skills must create workable ways to implement these objectives.

The use of videotapes might prove to be an effective tool in helping the teacher provide meaningful instruction in golf. At Pennsylvania State University, a videotape has been made for the beginner learning the full golf swing. It is a 60-minute tape – with audio and video recorded simultaneously – using demonstration, teaching cues, and practice situations. The learning instructions and progression of content have been based on a theoretical learning model or plan for learning called TOTE.

TOTE: Test-Operate-Test-Exit

Miller, Galanter and Pribram (3) suggest a motor plan called the TOTE which is, in essence, a systematic procedure for learning that makes provisions for feedback based on cybernetic theory. Robb (4) has neatly summarized cybernetic theory by explaining how human performance is analogous to servomechanism performance. Servomechanisms are self-regulating devices, such as a thermostat, computer, or space vehicle, which operate on the principle of feedback. Control shifts from one operation to another (thermostat commands the furnace to go on or off) based on feedback information. [For a greater understanding of this concept and its relationship to human performance, see also Rothstein (5).] The TOTE Model has been used by Rothstein (5) for teaching archery. Rothstein and Toole (6) have applied the TOTE to learning golf at

the beginning, intermediate, and advanced levels of skill. This article will explain how the TOTE has been used on videotape for the beginner learning the golf swing.

In the first test stage, the student is to determine the desired state of action. The desired state is presented on this videotape in the form of a question, e.g., "Is the back of the left hand facing the target?" The question is accompanied by a demonstration of someone performing the "question" correctly. In the next stage, the operate stage, the student attempts to move the back of the left hand to face the target. In the second test stage, which uses the same question as in the first, the performer determines whether she has performed correctly. If incongruity exists, that is, if the actual state of the performer does not match the desired state presented on the tape, the performer will continue to make corrections to reduce the incongruity. Congruity is exhibited by a "Yes" answer to the test question. When congruity exists, the program for action – the test question – is "exited," and she proceeds to the next question. The student learning from this golf TOTE model is asked to answer "Yes" approximately three times for each question. If the learner can successfully fulfill the requirements of the question three times, it is hoped that she will have learned it adequately to perform it correctly at a later time.

When she can say "Yes" three times, she may proceed from question 1 to 2, 2 to 3, 3 to 4, and so on, or she may hit balls trying to refine and incorporate the movement from the question into her swing. If she cannot say "Yes" to the question at least three times, she may practice on some of the practice situations suggested by the videotape, which are designed to effect correct performance on the question. Possibly her instructor will have other suggestions for practice. The questions could be typed and given to the student for reference while she is working on a particular TOTE unit.

TOTE Goals and Subgoals

The motor plan for developing the golf swing as presented on the videotape is created from a hierarchy of TOTE units. The primary unit or goal is to hit the golf ball. Miller, Galanter and Pribram (3) called this primary goal the strategy. In order to produce the primary goal there are subgoals called tactics, which are smaller TOTE units. Included have been questions founded on kinesiological concepts important to swing development for the average beginner. Examples of these subgoals are, Is my grip correct? Is my stance correct? Is the plane of my swing approximating the vertical? Have I produced the desired range of movement for the backswing? Other questions at this subgoal level deal with (a) proper target alignment at address, (b) the larger segments of the body contributing to force

production in the downswing before the smaller segments, (c) putting specific muscle groups on stretch, (d) the effect of the grip and the clubface position throughout the swing on the clubface position at impact, and (e) the accelerational components of the swing.

These subgoals are further divided into smaller subgoals which help the learner to perform correctly or exit the larger TOTE units. These subgoals are in the form of test questions based on the mechanical principles underlying good form in the golf swing. For example, the subgoal Correct Grip is subdivided further:

Is the top of the grip directly in front of my body?
For the left hand grip, is the club grip lying on a diagonal line extending from the second joint of the first finger to the base of the little finger?
Is the hand closed around the club?
Is the back of my hand facing the target?
With the hand closed around the club, is the grip firm, especially the last three fingers of the hand?
Is the little finger of the right hand resting between the first and second fingers of the left hand?
Are the other three fingers of the right hand firmly together and placed against the first finger of the left hand?
Is the thumb of the left hand in the palm of the right hand?
Does the V of the right hand point toward the right shoulder?
Is the grip correct?

The last question, "Is the grip correct?" initiates action for the larger subgoal Correct Grip. Now the learner must recheck all the prior questions on the grip in order to exit the question. At a higher level of skill there would be further subdivisions of goals dealing with the finer points of the grip, plane, range, left side dominance, and so on.

Using The TOTE To Enhance Skill Learning

Support for use of the TOTE in skill learning is recognized by Gentile (1, p. 7) who states, ". . . the important aspects of the TOTE concept are that (1) an image or plan of movement exists prior to execution; (2) information concerning the output is fed back to be matched against the plan; and (3) the evaluation of the "Feed-back-Plan" comparison guides in the execution of the movement and determines at what point to terminate further action." Glencross (2, p. 2) reports, "A number of studies have demonstrated that many apparent failures to learn are due to failure to comprehend what has to be learned . . . . The details of the learner's plan will depend on how well he can translate into his own terms or code the information about how the task is performed."

Since golf is a fairly complicated skill both to perform and to teach, this TOTE Model should simplify the learning process. The golf swing is difficult because of the large movements required from many joint actions and because of the fact that a very small ball is hit by a long implement with a small hitting surface. It is difficult to teach in that it requires a good knowledge of the swing, an understanding of basic kinesiological principles, and an experienced eye for recognizing errors significant to the basic components of the swing. Robb (4, p. 58) states that "In the early stages of skill learning, the student is not able to discriminate between relevant and irrelevant information. If the teacher gives too much information on how to perform a certain skill, some of the information on how to perform will be processed and some will be filtered out." The TOTE videotape helps the learner focus attention on specific components relevant to a basic swing.

Filming

When the TOTE for golf was filmed, many camera angles of the swing were shown and the speed of the swing was varied; these facts provide distinct advantages to the learner. The swing was filmed from the performer's view, from the front, and from the side. Placing a mirror overhead made the angle of viewing the videotape more nearly like the learner's visual perception of his own body throughout the swing. The learner is asked to observe his movement in hopes that visual cues of his own movement will positively affect learning. Also, the swing has been filmed in slow motion, in held positions, and at its regular speed. It is helpful for the learner to see some of the individual TOTE questions in a held position and then to see the same TOTE question put in the context of the total swing performed slowly and at regular speed.

Use in Teaching

It is conceivable that a learner could bypass some of the TOTE questions and instead practice other phases of the swing. Support has been given by the results of the writer's master's thesis (7) for the exclusion of some TOTES by those who have a rich background with batting. It was found that clubhead velocity was not affected when teacher cues concerning the pivot and weight transference were omitted for those who were well skilled in batting. We might surmise that other TOTES could be omitted for those well skilled in similar tasks.

The videotape could be used in a beginning golf unit in addition to other methods used by the instructor. Since we know that not all learners benefit from the same teaching techniques and cues, the

videotaped instrument could be an additional medium for instruction and motivation. The instructor could also send a student who is having difficulty with one part of the swing to the videotape to view and practice that part of the swing. Also, if the whole class were to follow along with the videotape TOTE motor plan in the beginning stages of learning golf, the teacher would be freer to make individual corrections.

REFERENCES

1. Gentile, A. M. "A Working Model of Skill Acquisition with Application to Teaching." *Quest* 17: 3-23; January 1972.
2. Glencross, D. J. "Skill Learning and Teaching: A Cybernetic Model." Paper presented at the 13th ICHPER Conference, Sydney, Australia, July 30, 1970.
3. Miller, Galanter, and Pribram. *Plans and the Structure of Behavior.* New York: Holt, Rinehart & Winston, 1960.
4. Robb, Margaret. *The Dynamics of Motor-Skill Acquisition.* Englewood Cliffs, NJ: Prentice-Hall, 1972.
5. Rothstein, Anne L. "Facilitation of Learning Through Application of the TOTE Model." *Bridging the Gap* 2: 45; 1972.
6. Rothstein, Anne L. and Toole, Tonya. "Proposed Use of the TOTE in Teaching Golf at Beginner, Intermediate and Advanced Skill Levels." Paper presented at the Fourth Annual Psycho-Motor Learning and Sports Psychology Symposium, Waterloo, Ontario, Canada, October 1972.
7. Toole, Tonya. "The Effect of Three Teaching Methods in Golf on Achievement of Learners with Differential Skill in a Related Task." Master's thesis. Madison: University of Wisconsin, 1969.

SELECTED READINGS

Celli, Barbara and Rothstein, Anne. "Application of the Learning Model Basketball Foul Shot." *Bridging the Gap,* 2: 12; 1972.

Fitts, Paul M. and Posner, Michael I. *Human Performance.* Belmont, CA: Brooks/Cole, 1967.

Robb, Margaret. "Feedback and Skill Learning." *Research Quarterly* 39: 175-84; 1968.

Whiting, H. T. A. *Acquiring Ball Skill.* Philadelphia: Lea & Febiger, 1969.

Programmed Learning
Rules and Etiquette of Golf

BEN BRUCE, JR.

Ben Bruce earned his M.S. degree at Indiana University. He began his golf career as a caddy, has taught golf for 25 years, and conducted 30 clinics for the Lifetime Sports Project of AAHPER. He is co-author with Evelyn Davies of Beginning Golf. *Currently, he supervises all golf teaching in the basic instruction program at Indiana University.*

Read the first statement. There are at least two responses. Select the one you think is correct. There is a number in brackets following the response. Go to this number, and if your response is correct you will be directed to the next statement. Should your selection be wrong, you will be directed back to the original statement to select the correct one. The object is to select correct statements and proceed without having to go back.

1. If a ball is accidently knocked off the tee as you address it, there is a penalty. Yes [16] No [21].
2. Wrong. Go back to 15.
3. A ball hit into an area where play is prohibited (out-of-bounds) results in a penalty of: two strokes [19] stroke and distance [17].
4. Wrong. Go back to 27.
5. A provisional ball may be played when you: think the original ball is lost [28] think the original ball is unplayable [23].
6. No more than two club lengths is correct. Go to 31.
7. A ball hit into casual water may be dropped and played from: a point on the line of flight into the water [32] the nearest point of relief but no nearer the hole [29].
8. Correct. The club cannot touch the ground in a hazard or water before a stroke. Go to 9.
9. Playing the wrong ball from a hazard results in a penalty. Yes [33] No [46].
10. There are only two types of hazards, bunkers and water. Yes [35] No [48].
11. Wrong. Go back to 26.
12. Hitting an attended flagstick on a chip shot results in a penalty. Agree [49] Disagree [36].
13. Sorry, go back to 31.
14. Wrong. Go back to 27.

15. Sue topped her tee shot because Tom was talking at the time she hit. May she hit over? Yes [2] No [22].
16. Sorry, go back to 1.
17. Correct. You must play from the spot where the original ball was hit adding one stroke. Go to 27.
18. If a standard driver is 42 inches long you may tee your ball behind the tee markers by no more than 42 inches [30] 84 inches [6].
19. Wrong. Go back to 3 and try again.
20. Right. One stroke into the water, one stroke penalty, one stroke onto the green, and three putts – or a total of 6 for a triple bogey. Go to 5.
21. No, just re-tee the ball. Go to 15.
22. This is a violation of etiquette, not a rule. Go to 3.
23. Sorry, go back to 5.
24. Wrong. Go back to 44.
25. The player who plays first, honor, is determined on a fairway shot by: the distance from the flagstick [34] the distance off the teeing area [43].
26. If a legally dropped ball rolls over two club lengths, into a hazard or out-of-bounds, you may re-drop. Agree [17] Disagree [58].
27. Sue hit her tee shot into a water hazard on a 215-yard hole. She hit her next shot onto the green and three putted. She scored a: bogey [4] double bogey [14] triple bogey [20].
28. Right. Go to 18.
29. Correct. Go to 44.
30. No. Go back to 18.
31. According to the rules, a player may carry no more than: 12 clubs [13] 14 clubs [45].
32. Sorry, go back to 7.
33. Wrong. Go back to 9.
34. Right. The player farthest from the flagstick hits first. Go to 10.
35. Correct. Go to 12.
36. Wrong. Go back to 12.
37. A ball is declared lost after a search of 10 minutes. Yes [63] No [52].
38. Wrong. Go back to 70.
39. You hit a ball into deep rough. You think it may be lost so you play a provisional ball. Yes [65] No [68].
40. Right. This is a term used by the USGA, which does not distinguish between rough and fairway. Go to 47.
41. Wrong. Go back to 59.
42. The most important part of golf is the grip. Yes [55] No [53].
43. The longest off the tee may not be nearest the hole. Go back to 25.

44. The penalty for touching your club to a hazard before making a stroke is: two strokes [8] one stroke [24].
45. Correct. Go to 7.
46. There is no penalty as you can only ascertain that there is a ball in the hazard. You cannot identify it. Go to 25.
47. Any fixed or immovable object used to service the golf course is referred to as a (an): obstruction [64] hazard [60].
48. No. Go back to 10.
49. Right. A two stroke penalty is assessed. Go to 37.
50. Assuming the clubface is square to the line, club head speed results in greater distance. Go to 66.
51. No. Go back to 61.
52. Correct. Only 5 minutes is allowed. Go to 70.
53. Wrong. Go back to 42.
54. Timing and rhythm are more important. Go back to 62.
55. It has been said that no good golfer has a bad grip and no bad golfer has a good grip. Go to 26.
56. Correct. The ball is played as it lies. Go to 39.
57. Wrong. Go back to 66.
58. Sorry. Go back to 26.
59. Distance is directly related to club head velocity. Yes [50] No [41].
60. No. Go back to 47.
61. Competition based on number of holes won is: match play [69] medal play [51].
62. Rhythm and tempo in a swing are more important than strength. Agree [67] Disagree [54].
63. If you look more than 5 minutes you are cheating. Go back to 37.
64. Correct. Go to 61.
65. Wrong. Go back to 39.
66. The area on a golf course, other than teeing area, hazards, and greens, is referred to as: fairway and rough [57] through the green [40].
67. Right. Go to 42.
68. You can use a provisional only on a lost ball or out of bounds. Go to 59.
69. Medal play is an obsolete term for "stroke play." Go to 62.
70. There is a penalty for playing out of turn in stroke play. Agree [38] Disagree [56].
71. You may redrop under no penalty.

Starting a Golf Team

MARGARET CUMMINS

Margaret Cummins received her B.S. degree from the University of Arizona and her M.S. degree from Smith College, Northampton, Massachusetts. She is working toward an Ed.D. degree at Indiana University. She played competitive golf during high school and college, sponsors an annual intercollegiate golf tournament, and has coached the Indiana University women's golf team for the past six years.

Seldom is the problem in forming a golf team one of having to tell some students they cannot play but rather one of finding enough skilled, dedicated, competitive golfers to comprise a team. In my six years of coaching collegiate golf it has all too often been my experience that golf for girls is still an elitist sport. In the 1973 Indiana State Girl's Golf Tournament there were only 51 competitors, a very small number of junior girl golf participants for one Midwestern state. Be prepared, therefore -- in coaching most teams -- to teach the promising beginning golfer.

When starting a team you may not only have a great deal of teaching to do, but you will probably also have to make arrangements to practice and play on one of the courses in your locality. As a rule, most courses are accessible to high school and college teams. If a fee is charged, it is usually possible to get reduced rates in either club memberships or daily greens fees for the team members. If team members need golf clubs, it is often possible to acquire some used ones through your local service organizations.

Selecting a Team

Most skilled students coming out for the team have a membership at a golf course. They have been taught by a professional and may or may not have had tournament experience. A school is fortunate to have two such golfers in its student body.

For the sake of promoting golf and providing competition for those students who are interested, golf coaches must not only be willing to accept and further the skills of the novice golfer but they must also advertise their willingness to help such students. Many students fail to try out for the team because they believe they are not "good enough." The results of the 1973 Midwest Women's Intercollegiate Golf Tournament provide an illustration of the range of skills. There were 87 golfers, and their 18-hole scores ranged from a low of 76 to a high of 137.

When selecting a team, there are three characteristics that are essential: (a) good physical coordination, (b) a sense of competition, and (c) a willingness to work. Golf requires rhythm and a keen kinesthetic sense. If a student can pull together her body force while maintaining a relatively stable body position, she should have a chance of becoming proficient in golf skills.

In tournament play, a competitive novice may outscore a more highly skilled noncompetitive player. Sometimes golfers who can score in the low 80's on a practice round shoot in the hundreds because of psychological factors. The golfer must be able to tolerate and overcome the effects of her own poor shots; she must believe that she will do well (not necessarily win the tournament); and she must be trained for the pressures of 18 holes of uninterrupted concentration. Too frequently during practice some players either stop trying or start over after one bad hole. It is no wonder they fall apart during tournament play. Each practice round must be approached with the seriousness of tournament play. If a student feels that this concentration minimizes the fun and sociability of golf, then she probably should not be playing in competitive events.

While the golfer is both a student and an athlete, it is still reasonable to expect her to practice and to play rounds during the week. Students who are unwilling to work not only harm their own game but they also undermine the necessary attitude of team spirit. Most golf tournaments offer both individual and team competition. It is an essential psychological asset for the golfers to work together as a team while competing against one another.

Practice Schedule

If possible, players should practice under the supervision and instruction of the coach at least six hours a week. The aspects of the game the golfer practices depend somewhat on the quality and consistency of her swing and the demands of the game. Frequently, more shots are used within an area of 100 yards from the green or closer than are used from the tee to the approach distance. Tournament nervousness takes its toll on shots that require extreme accuracy and controlled force. A minimum of half the practice sessions should be spent on short approach shots and putting. One suggested plan is to have the golfers start practice on the putting green, move off to chip and pitch shots, and gradually increase the distance of their shots until they are hitting drives. Most students love to swing all out at the ball; the above progression assures time spent on the short game, and it allows a student to correct basic swing errors while using the shortest possible swing arc and lever.

Ideally, the golfer should play two 18-hole rounds a week. Since each round may take as much as five hours, that schedule is not

always practical. In the beginning, the coach should accompany the students during the practice rounds. As mentioned before, practice play should be as much like tournament competition as possible. Competition can be set up between team members, and all USGA rules should be taught and followed. During the practice round, a detailed analysis of the golfer's game should be recorded. The analysis should include clubs used, distance and accuracy with each shot, and conditions under which the ball was played. Players should be encouraged to practice and play under adverse weather conditions. In six years more than three-quarters of our competition has been during inclement weather. At the end of a round, the player and coach should be able to tell exactly where shots were wasted and what part of the student's game needs work at the next practice session.

Error Correction

When assessing a student's swing for the purpose of correcting errors, several factors must be considered. Is the student a novice golfer, or is she under the tutelage of a professional? Is the student psychologically receptive to swing change? Is there sufficient time to work through the error with the student? How soon is the next competition?

As the golf coach, you must decide what swing errors are within your ability to correct. If the student is a novice, chances are you will be her primary teacher and, thus, also responsible for correcting her errors. Those errors usually result from failure to do things you have taught. If the student is highly skilled and also receiving instruction from a club professional, then you and the student must decide who is to be the principal teacher. Teaching philosophies differ, and two different people trying to instruct a golfer is an unsatisfactory arrangement. The length of time you have to work with the team may aid in making that decision. If your season is short and the time spent with each golfer is limited, then it may be better to have the golf professional assume the primary responsibility for the student's swing. With the highly skilled golfer, mechanical analysis of the swing through photographic equipment is an invaluable aid for detecting errors.

Time and psychological readiness are essential factors in decisions involving error correction. It has frequently been noted that tournament play is at least 50 percent psychological. When attempting to make swing changes, be sure there is sufficient time for the student to make the change and acquire confidence in the altered swing. Every swing alteration is accompanied by a change in kinesthetic feel. As a general rule of thumb for the highly skilled student, no *new* swing changes should be made two weeks prior to

competition. Instead, help the student to compete within the limitations of her swing. If the student has not acquired confidence in her swing, she probably will revert back to the old way of swinging during tournament play. She will also revert back if the new swing has not been utilized while actually playing on the golf course. Hitting balls on the practice range is beneficial only to a point. For the novice golfer, swing changes can probably be made up to the week before competition because her swings will not usually be very well established. Competition does not seem to bother novice golfers as much as the highly skilled golfer, perhaps because the novice golfer is used to performing rather erratically.

Conclusion

With the current emphasis on increased sports competition for girls and women, schools that do not have golf competition for girls should be encouraged to provide it. It has been my experience that teachers and coaches already sponsoring teams are most eager to aid in establishing new teams and perpetuating golf competition for girls. Teams develop as we accept the challenge to establish them and help them grow.

What Motivates the Successful Woman Golfer?

ANDREA HAUGE

Andrea Hauge received her B.A. degree from St. Olaf College in Northfield, Minnesota, and her M.S. degree from the University of Colorado. She has taught golf in a variety of secondary schools and colleges. Currently, she divides her time between responsibilities at home and graduate study at Michigan Technological University in Houghton. Andrea Hauge is the present Golf Guide *chairman.*

Where does the woman who has developed a good golf game get the drive to win? The behavior pattern expected of females in American society is a noncompetitive one. Femininity has meant being nurturant, affiliative, passive, and dependent on others for approval. This description of woman's role leaves out independence, aggression, and achievement-orientation, which are characteristics assigned to males in our society.[1] This pattern of passivity and a dependent orientation toward adults has been found to be a stable dimension of personality in girls into adulthood, and agression has been found to be a stable trait in boys.[2]

Dependence vs. Independence

The social golfer, one who does not expect to achieve a low handicap or win a tournament, may fit into this passive role. But the woman who practices diligently and seeks to perfect her shots, who is spurred on by competition, does not fit the passive-dependent pattern. She has adopted some of the characteristics traditionally expected of males in our society – independence, aggressiveness, competitiveness.

Several students of women's behavior have found, recently, that many girls do in fact have a well-developed need to achieve, which is often directed toward academic or social success in the absence of

---

[1] Judith M. Bardwick, *Psychology of Women: A Study of Bio-Cultural Conflicts.* New York: Harper & Row, 1971. P. 126.

[2] Jerome Kagan and Howard A. Moss, *Birth to Maturity: A Study in Psychological Development.* New York: John Wiley & Sons, 1962. P. 95.

opportunity to achieve in areas traditionally reserved for males.[3] Girls have slipped into golf in the past more easily than into combative sports, since golf is considered graceful and the country club a desirable setting for social life. It was acceptable as long as one did not take it too seriously or compete too vigorously.

Fear of Success

Where does all this leave the girl with the good swing who is considering going out for the golf team? Do girls fear success? If it is at the expense of others whose approval they need, they do fear success. If the girl believes that aggressive behavior is unfeminine and competition is aggressive, and if she does not want to be labeled "masculine," then she is motivated by a fear of success.[4]

Now, however, competitive events are offered at the high school and college levels. The purses for professional women golfers are significantly higher than they were a year or two ago. The prestige attained by the successful golfer rises with the stakes and the publicity. As competition for women becomes more socially acceptable, the feminine role is altered or expanded to include the competitor.

The Need To Achieve

Where does the successful woman golfer get her motivation? The need to achieve is a basic human need. For women, the achievement motive has traditionally found expression in areas other than sports. Pressures by parents and peers to "be a lady" after the adolescent years, at least *to appear* nonaggressive, and to develop social skills and relationships have usually precluded serious competition.[5] However, if a girl has developed her swing, concentration, and need to perform successfully, she will be drawn to competitive golf. And new models among women athletes, including professional golfers, are smoothing the way for the competitive girl who wants to concentrate on her game.

---

[3] Bardwick, *op. cit.*, pp. 176-77.

[4] Matina Horner, "Fail: Bright Women." *Psychology Today*, November 1969, pp. 36-38.

[5] Bardwick, *op. cit.*, pp. 177-78.

How the Student Learns*

CELESTE ULRICH

Celeste Ulrich received her B.S. degree from the University of North Carolina at Greensboro, her M.A. degree from the University of North Carolina at Chapel Hill, and her Ph.D. degree from the University of Southern California at Los Angeles. She is author of numerous professional articles in educational, sport, and physical education journals and of books, most recently The Social Matrix of Physical Education. *She is currently professor of health, physical education, and recreation at the University of North Carolina at Greensboro.*

On the surface it would appear that anyone should be able to teach. All you have to do is explain to someone else how you perform, and they will perform in the same pattern. But those who have attempted to teach know that the process is not quite that simple. Others do not seem to be able to duplicate your actions – as seemingly clear as your explanations may be. Teaching really is not explaining how *you* perform, it is assisting others to find how *they* may best perform. The good teacher is the analyzer, the motivator, the synthesizer, the regulator, and the problem solver. He is only incidentally the demonstrator, the example, the professional player.

In many respects, the psychology of teaching spans all subject matter fields. It makes no difference if you are teaching mathematics, literature, tennis, piano, philosophy, or golf – the psychology of the teaching-learning situation remains primarily the same. However, the golf teacher and coach has one major advantage over many of his less fortunate fellow mentors. People come to you to learn. They seek learning. They want to learn to play golf well enough to be a part of the group, to gain the satisfaction of hitting a long drive or sinking a difficult putt. Your students are anxious to learn, and because of that simple fact, you have many more things "going for you" than do most mathematics instructors, literature professors, and piano tutors. But you have to learn how to make the most of that interest. You have to learn how best to teach people. You are not teaching golf – you are teaching people (whose characteristics vary) about golf.

*Material for this article was taken from *Methods of Teaching: PGA Home Study Program*, edited by Roger Hermanson. Chapter 2, "How the Student Learns," Celeste Ulrich.

Presentation of Subject Matter

There is much written about teaching theory, but for the most part teaching-learning theory may be summarized into three conjectures. There are (a) those theories that support the conditioned response; (b) those that support the gestalt (or insightful) response; and (c) those that support the "resolution of forces" response. In general, these theories indicate that learning only occurs when insight has been achieved with regard to the skill and you reach the "Oh, I see now" moment (gestalt); and when you are forced to perform in a certain pattern because it is so uncomfortable, frustrating, and fruitless to perform in any other way (resolution of forces). All of these theories generally come into play in most teaching-learning situations, and the wise teacher, although he may lean more heavily on one theory than another, utilizes all these theories in his teaching. Hence, most teachers attempt to take the most successful and meaningful processes of each of the theories and synthesize them into one theory which, in a sense, comes to be each teacher's own particular style of teaching.

We know that there seems to be no really adequate substitute for practice when it comes to perfecting a skill. However, be aware of the fact that practicing the wrong thing is just as powerful a teaching device (but destructive) as practicing the right thing. When a man hits ten drives and all of them slice, he has spent a good deal of time in learning how to slice. In order to learn how not to slice, he has to be given cues on such things as his stance, swing, and balance. You do not learn to putt by just putting, nor do you learn to chip by only chipping. You have to understand what you are doing and what you are attempting to do and then bring those two concepts into a unified pattern.

Insights into the learning process come about only as new patterns are used and as some experimentation takes place with each performance. You probably should never ask a beginner if a particular shot feels good, since nothing is likely to feel good to a beginner. Instead, you must identify for the beginner the fact that a specific pattern was a good pattern and that to duplicate that pattern would produce another good performance. If what you predict comes to pass, the student achieves success, experiences satisfactions, and thus begins to feel the pattern that assures such sensations. Finally, he knows the feel of a good shot and up to a certain point can become his own teacher.

When learning occurs as a resolution of forces, it may be insightful or a conditioned response. It is in this concept that the teacher has a special obligation to play the role of motivator. As has been mentioned, you have the interest of your students. They seek you out to learn. But once that situation has been set up, there is no

reason to assume that such interest will be sustained unless the teacher makes a special effort to help with the resolution of forces. Motivation is so complex that the ideal type is difficult to prescribe. There are times when understanding and caring are motivational devices; there are times when these attributes can deter the learning process. The intelligent teacher attempts to be empathetic and sensitive to the student's frustrations, ambitions, desires, and aversions; and thus he helps to resolve forces as he presents the subject matter. The teacher must be continually aware of the relationship between himself, the student, and the subject matter. It is not necessary for all three of these facets to be "positive." That is, it is not necessary for the teacher to like the student, the student to like the teacher, and both to like the subject matter. As a matter of fact, it has been found that some of the most dynamic and successful teaching can occur when there is one negative element in that relationship. Therefore, if the teacher likes the student and the subject matter, but the student dislikes the subject matter and likes the teacher, exciting teaching-learning can take place. Golf teachers often have too much positivism in their situation. Do not be afraid of antagonizing your students (if it is for a good reason); do not worry if all of your students do not like all that they are learning; do not worry if you are not fond of all your students. These negative elements may result in better learning. There are times when "everything perfect" fosters boredom and dissatisfaction.

The relationship of rest and practice is of special importance in teaching skill activities, which make demands on the student's energy level as well as his attention span. It is known that practice sessions that are too long accomplish little. You can assume that the best way to teach is to have short and frequent practice sessions with rest periods interspersed throughout the lesson. It should be emphasized that rest periods are not necessarily those periods when nothing is going on. For example, a rest period from a chipping practice session might well be spent on reviewing the fundamentals of chipping. Golf etiquette can be learned while one is "resting" from hitting tee shots. Resting often just means a change in activity. However, the relationship of rest and practice does indicate that it would be wise to plan your lessons so that you are not talking during the first half of the lesson and the student is practicing during the entire second half of the lesson. Judicious interspersing of both rest and practice is likely to produce better results.

The actual length of any lesson depends a great deal on the learner. The beginner needs more rest periods than the advanced player; the very young need more rest periods than the mature. Usually it is inadvisable to give lessons that are over an hour in length for any individual or group. However, there are exceptions to

such a generalization, especially with very experienced, mature players. In general, you are not helping your students when the lesson goes beyond its allotted time. If the practice and rest periods have been planned wisely, the end of the lesson should leave the learner anxious for more and wanting to go on. It should leave the teacher satisfied with the progress made and enthusiastic for another "go" at the subject next time.

It should also be noted that the rate of new learning decreases as the learner's skill improves. Therefore, you can expect beginners to learn with enthusiasm as they see significant progress, but the intermediates have a tendency to settle on maddening plateaus and often seem to accomplish little, lesson after lesson. The more advanced player usually learns even fewer new things each lesson, since he already knows so much. But he has a more perfected skill pattern to condition his interest, and consequently his long periods of very little new progress are easier for him to bear than they are for beginners in the same situation. It is apparent that intermediates must be taught in a different way from beginners, and perhaps it is at the intermediate level that we ought to have the student analyze his own patterns through audiovisual devices such as movies, photographs, instant replay video sets, and other equipment. The intermediate needs a new approach to help move him from his plateau, and just more of the same that you gave him as a beginner usually is not enough to ensure his continued progress.

Research also tells us that ideas communicated at the beginning and end of a series of ideas are usually more easily remembered than ideas that fall in the middle of the series. Therefore, it would be wise to emphasize those points that the teacher deems important by putting them at the first of the lesson and then again at the end. Too often a lesson is started by rehearsing things learned from the previous lesson, and this may be a squandering of time with respect to the interest period. Practice can be scheduled in the middle of the lesson just as well as at the start or end. It may be wise to save the first and last parts of the lesson to press home those new points that are essential and to utilize the middle part of the lesson for the rehearsal period.

It is always the hope of the teacher that there be some transfer of learning from one situation to another. In essence, such transfer is the real aim of any teaching-learning situation. It would seem that if one learns to swing a 5-iron with some skill, such skill could be transferred to learning to swing the 7-iron and the 2-wood. There is more transfer of learning possible between the 5- and 7-irons than between either of those and the 2-wood. Factors that prevent complete transfer of learning are that the head of each club is a different weight, the shaft of each club is a different length, the face

angle of each club is different, and the stance demanded by each club has some variation. Therefore, striking the ball with the 7-iron requires a somewhat different skill from striking the ball with a 2-wood. Elements of the swing that can be used in various situations (or transferred) should be pointed out to the student so as to encourage analytical thinking instead of merely muscular mimicry.

One other aspect of the presentation of the subject matter should be emphasized. That concerns the role of decision making in skill learning. It is almost impossible for the learner to know what he is to look for when he is watching a demonstration unless he is cued as to what he should observe. It is almost impossible for a learner to make the right response in any situation that requires a quick decision unless he is aware of the influencing facts and unless he knows how to interpret those facts. Therefore, it is generally useless to ask a beginner in any game to tell you what he did wrong. His usual response is that he hit the ball incorrectly, or that he did not hole the ball as he expected. *Why* he did those things are decisions too involved for the average beginning student to make. Correct analysis of a golf swing depends on experience, knowledge, and an understanding of neuromuscular relationships. Asking for self-analysis by the student should be used primarily when working with more advanced students. This is not to suggest that beginning and intermediate students cannot be involved in idea formulation and shared decision making. They can to a limited extent, but they need more advice and cues from the teacher in order to reach intelligent conclusions. To keep interest, the subject matter cannot merely be "laid out" and the student invited to partake. Instead, subject matter must be readily available, but the instructor must insist that the learner seek it rather than just grasp it.

Thus, we see that the method of presentation of the subject matter can have a profound influence on the teaching-learning process. It finds its rationale in learning theory, motivational techniques, and reasonable methodology. It makes sense for the teaching-learning situation.

Age Differences in the Individual's Acceptance of Learning

The teacher must also be aware of the actual physical characteristics due to the age of the people whom he teaches. Obviously, children should be taught in a different way from adults. Children generally have different vocabulary patterns from adults, shorter attention spans, greater tolerance of diverse teaching methodology, less tendency to rebel against direction, and greater tolerance of both positive and negative criticism. Maturation brings its headaches as well as its joys. The adult is more knowing, therefore supposedly more understanding. However, he is also more sensitive to criticism,

and this interferes with both his knowledge and his understanding. The golf instructor must understand that in teaching an adult and a child he should not use the same method, proceed at the same rate, or expect the same results. Children can be taught to perform long before they are emotionally ready to perform. To swing a club, strike a ball, putt successfully, keep score, and understand the rules is not all there is to playing golf. When the young person really learns to play golf, he learns something about himself that he did not know before. For one thing, he learns to control his temper and accept defeat graciously. The adult also learns things about himself, but his knowledge about self differs from that of the child. The golf teacher must always be alert to these "larger learnings" which are a part of every lesson that he gives.

The Behavior of the Learner

It is the desire and hope of every teacher that the behavior of the learner will reflect the teaching success of the teacher. Results obtained are proof of the teaching method. If a teacher knows how to present the subject matter properly, structure optimal learning conditions, and prepare the student to accept the learning, he is likely to obtain good results. However, there are times when the behavior of the learner reflects many of the things the teacher thought were NOT taught. If that is the case, it is obvious that the situation was not what the teacher had imagined, and that he must find the reasons that brought about such unsought and undesirable behavior. Sometimes something was overlooked in the teaching-learning situation – the student was not ready, the conditions were adverse, or the subject matter was poorly presented. Sometimes the teacher did a poor job of teaching, and sometimes the student did a poor job of learning. There is almost always a reason or a series of reasons why learning does not take place, just as there are reasons why learning does take place.

It is also important for the teacher to understand that frustration usually elicits behavior patterns of earlier and less adaptive days. Although it is hardly desirable, it certainly is not unusual to see an adult, frustrated in his attempt to execute a shot, throw down his club in exasperation. The only way such patterns can be changed is to impress upon the players that maturity calls for greater understanding of one's skill patterns as well as the patterns of others. If you expect your students to be good sports with regard to golf, they have to learn what being a good sport means in the heat of intense competition.

Finally, if the learning situation has been successful, the student gains in status. Every group has its status symbols and, in our society, the ability to play golf is one such symbol. It carries with it

a sense of leisure, a sense of well-being, a sense of social acceptance. And such senses are heady potions.

To teach takes a special sort of understanding and enterprise. Teaching is not easy; it is not always lucrative; it is seldom completely successful. But teaching, if it is understood and sought, is always rewarding. You are continually working with people who want to know something more than they already know. They want to be taught. Over the years, the golf teacher gains a better understanding of his subject matter, teaching environment, students, and expected behavior results. He will provide the concepts, offer the cues, and establish the conditions for learning. Then, as his finest reward, some of his students will give him credit for helping them achieve greater enjoyment from the game by playing better golf.

A Basic Golf Unit — Guide for Content

CAROL JOHNSON

Carol Johnson received her B.S. degree from Miami University of Ohio. She has competed as amateur and professional in tournament golf and is an LPGA teaching professional. Currently, she serves as Eastern educational consultant for the National Golf Foundation and golf professional at the Greenhills Country Club, Greenhills, Ohio.

The beginning teacher of golf has many problems, one of which is deciding what to include and what to eliminate from the program. The content should be kept simple, yet essentials must be included so that students will know what to do when they get to the golf course.

A short guide for content of a sound basic program is presented in this article. It can be lengthened or shortened to fit the allotted class time.

I. History
   - A. Where golf started
   - B. Where it developed
   - C. Interesting persons involved
   - D. First women golfers
   - E. Types of clubs and balls used over period of time
   - F. Introduction of golf to the United States
   - G. Formation of LPGA and other associations

II. Rules
   - A. Out of bounds and lost ball
   - B. Unplayable lies
   - C. Water
   - D. Differences between match and stroke play

III. Terms
   - A. Tee to green definitions
   - B. Hazards
   - C. Words defining rules
   - D. Warning words
   - E. Words of courtesies
   - F. Words describing the actions of the ball
   - G. Words describing the golf swing
   - H. Terms used in competition

IV. Courtesies
   A. Procedure for getting on a golf course
   B. The playing routine of courtesies
   C. The sportsman's manners and thoughtfulness
   D. How to move swiftly between shots

V. Equipment
   A. How to choose balls, clubs, and bag suitable for beginners (1 and 3 woods or 3 and 5 woods; 3-5-7-9 and putter, all modestly priced)
   B. How to choose light, manageable golf bags
   C. How to choose comfortable shoes (tennis or golf) and loose cotton or cool clothes.

Golf, as other individual sports, is a socializing game. The main purpose of learning to play, for most students, is to join others in enjoyable outdoor recreation. Since the level of skill of the individual golfer does not directly affect the play of others, the game can be enjoyed by young and old, skilled and unskilled. For all golfers, however, the teacher should stress the essential courtesies of the game and the importance of moving quickly along the course. He should strive to keep the presentation of the game simple and learning fun.

The actual physical moves or skills of golf are most easily learned by the beginner when simplified, too. Concentration on the task at hand is difficult for the inexperienced golfer. Swinging through the hitting area with maximum speed requires confidence and control. For a short shot, concentration must be focused on direction, rather than on a full swing.

These are the main points for teaching the basic golf swings:

The grip

The grip aligns the hands to the target area (the area to which you want to hit the ball).

A. Hands in a praying position
   1. Back of the left to the target
   2. Palm of the right toward the target
B. As long as the hands are lined up as above, it makes little difference what you do with the little finger (on club, overlap, or interlock).
C. Tension of hand muscles firm, but not rigid (same for full and short shot)

The stance

A. Full: for all shots until golfer is shooting in the 90's
   1. Shoulder width
   2. Ball placed slightly forward of center
   3. Good balance
   4. Alive tensic

B. Short
   1. Narrow stance and possibly open slightly
   2. Weight more to left side

The full swing: all clubs

A. The ball line is directly lined up to the target.
B. The feet and body are on a line perpendicular to the ball line.
C. The move to take the club away is initiated by the hand, arms, shoulders, and body in that sequence. It is usually done so smoothly that they all flow together and seem like one move. (Arms extend to maximum reach on the back and forward swing.)
   1. The left arm is the radius of the circle on the way back.
   2. The right arm is the radius after impact.
D. The shoulders make a complete back-to-the-target turn at the top of the backswing.
E. The left side of the body initiates the forward motion of the swing. Lead with the left; the rest of the swing follows. The backswing sequence (above) reverses itself: body, shoulders, arms, hands. (There is a feeling of pulling the swing along the line to the target.)
F. The upper body remains in position as around a hub or axle while the lower body moves toward the target.
   1. The hub is located below the chin.
   2. The emphasis should be on keeping the hub still, rather than just eyes or head on the ball.

   Remember the maximum force!

The short shot: usually 5, 6, 7, 8, 9 wedges

A. Same grip only down on the shaft
B. Stance more narrow, slightly open, weight more on left
C. Swing from waist to waist (such as positions on a clock: short = 7:00 to 5:00; medium = 8:00 to 4:00; maximum = 9:00 to 3:00)
D. Little or no wrist action
   1. Back-and-forth, or pendular, movement
   2. left hand leads throughout shot.
E. Concentrate on spot where ball should land (target).

The putt

A. Grip is the same as or slightly relaxed from that described above (some reverse overlapping of index and middle fingers).
B. Stance is well balanced (choose the one you like: ball is played from the middle or forward).
C. Eyes over ball
D. Club straight back and straight forward
E. No body action
F. Choose: arm putt, wrist putt

G. Short stroke for short putts, longer and more pendular for longer putts

Allow the student freedom of choice as long as he has his eye over the ball, a straight club at impact, and no body movement.

Try not to emphasize more than a few basics. Keep it simple. Make it fun. It's a great walk out-of-doors with friends.

Each One Teach One

JAN WOOD
ELINOR NICKERSON

Jan Wood received her B.S. degree from the University of California at Los Angeles; did graduate work at the University of Southern California, Los Angeles; and received her M.A. degree in administration from San Francisco State College. She is an area representative for the National Golf Foundation.

Elinor Nickerson received her B.S. degree from the University of California at Berkeley. She has 25 years of teaching experience and is chairman of the Department of Physical Education for Girls at San Ramon High School in Danville, California.

The universal teaching situation of large classes and small physical resources leads many of us to decide that golf cannot be taught effectively in school. The one-to-one relationship, such as that found between student and pro, is so essential in learning this exacting game that the thought of introducing golf to dozens of people *en masse* is appalling. While nothing can ever equal the cash-on-the-line, person-to-person teaching of a good pro, an introduction to golf can be presented to large groups. Similarly, the clinic for reviewing, renewing, and sharpening skills can also be far from a waste of time. The key: organization; the basis: partners; the plan: each student becomes in turn "duffer" and "pro."

The teacher addresses her directions particularly to the helpers or "pros," while the performers or "duffers" eagerly listen in. She plans a learning progression from basic (as, for example, moving weight from back foot to front foot) to specific (the more complex shoulder turning under the chin). She dwells on learning by listening, looking, imitating, and feeling (kinesthetic sensing). Depending on her ability to motivate, to enforce safety rules, to project her voice, and to encourage self direction, she should be able to teach classes of 25 to 125 and do a capable job.

Several specific suggestions for use of partners in teaching beginners are given in the following discussion.

A. Lines: non-moving.

Partners face each other, "one's" facing "two's," the "one's" (duffers) swing first; the "two's" (pros) watch for one of the following teacher suggestions (change roles after each suggestion):

1. Grip
2. Both arms extended (triangle)
3. Weight shift from back foot to front foot
4. Body moves and shoulders follow
5. Hands waist high on backswing and waist high on follow through
6. Swing three times and hit the grass three times.

Let everyone build and grow together from good foundations. Try to keep errors and misconceptions from occurring. Work on only one position concept at a time. Take your time. Do not try too much too fast.

B. Lines: moving.

Let swingers hit, recover ball, and return to a line. Students opposite partners, using pee-gee or "sokker" balls, hitting toward each other. Hard balls are possible for chipping, if space permits.

1. One's hit toward two's, make them good. Two's walk forward, recover balls, and return to their hitting positions. Now it's their turn to hit.
2. Drill system as above, but hit three balls, hold follow through, and keep a score:
   1 point for good direction
   1 point for weight on front foot at finish
   1 point for lofted ball
   1 point for holding the follow through until the ball stops (unlike stroke play, here the high score "wins").

Teaching hints: Refer to partners as *twosomes*, a golfer's term. Use these exercises as practice. Alternate shots with coaching. Introduce the ideas of scoring competitively. Give practice in honor system, the basis of all golfing scores. For the next three balls have the winners move left and losers move right, to get new partners, thus new learning from new "pros."

C. Lines: moving.

1. Twosomes on one side of field, one ball only, moving the length of the field to a target, or "green," scoring as in a Scotch Tournament, by walking and hitting alternately.
2. Plastic or "sokker" ball hit to reachable target. Scoring: Add two putts if ball is on the "green" or one putt if the ball lands one handle length from the target (as in medal play or stroke play, low score wins).

Target suggestions:

a. line: 2 club lengths in front or back of line – "fair" = 3
   1 club length – "good" = 2
   1 handle length – "excellent" = 1

This evaluation of a successful hit can be used for any target.

b. flag stick (improvise: archery ground quiver with colored streamer, for example)
c. "green" (rope, hula hoop, marked area, five-yard lines, goal post space . . . .)
d. pitch and putt course (par three only)
e. plastic ball, "sokker" ball, handball, or tennis ball golf course

Let the students set up the course with your guidelines for tee and green areas. Their ingenuity will astonish and delight you.

Once your class is caught up in the excitement of learning the game, partners can assist or compete against each other. The teacher directs learning, reinforces with individual attention, disciplines for nonconformity, and assures safety. The "each one teach one" method of class organization can assure the student a totally satisfactory introduction to the game, a good grounding in basic skills, and an excellent foundation in rules and etiquette. Incidentally, in teaching such a unit you just might take a stroke or two off your own game. Good luck!

Sympathy Not "Tee"

KATHRYN WRIGHT
MARY LEE BARTLETT
Illustrations

Kathryn Wright received her B.S. degree from the College of the Ozarks, Clarksville, Arkansas, and her M.Ed. degree from the University of Houston. Mary Lee Bartlett received her B.S. degree from Sam Houston State University, Huntsville, Texas, and her M.Ed. degree from the University of Houston. Both teach secondary physical education in the Goose Creek Consolidated Schools, Baytown, Texas.

What a golf instructor needs is not another "tee" but lots and lots of sympathy! There are numerous frustrations involved in the teaching of golf to high school girls in physical education classes, and the biggest headache is the reclamation and identification of the golfers' balls. The authors have partially solved one of these problems.

When a recent "green" group of student golfers threatened again to "club" one another over the identification of driven balls, it was time for action. It is understandable that students who had quickly learned to hit the balls were anxious to see not only how accurate their approach shots were [illegible] the length of their drives.

Since golf is a popular Gulf Coast sport and is one of the most enjoyable and yet challenging units included in the Goose Creek Consolidated Independent School District curriculum, the authors designed a practical golf box and made each player her own "caddy."

The box, complete with a carrying handle, contains 15 golf balls – color-coded and marked to match the outside of the "caddy-kit" (similar to a shoe-shine kit). Five different markings are used on both kit and balls in four different colors – red, orange, green, and blue. The kits are numbered on top of the handle so that they can be assigned for class use. The numbers are easy to check off at the end of the period. A large frame was also designed and constructed to hold 20 boxes, and thus another frustration was eliminated – that of getting equipment to and from the teaching stations.

Before the golf kits were used, students would often pick up 15 of the closest, unmarked balls. Now each girl finds her own balls to match the carrying case assigned to her, and the box itself is designed so that one can run her hand over the top to check to see if

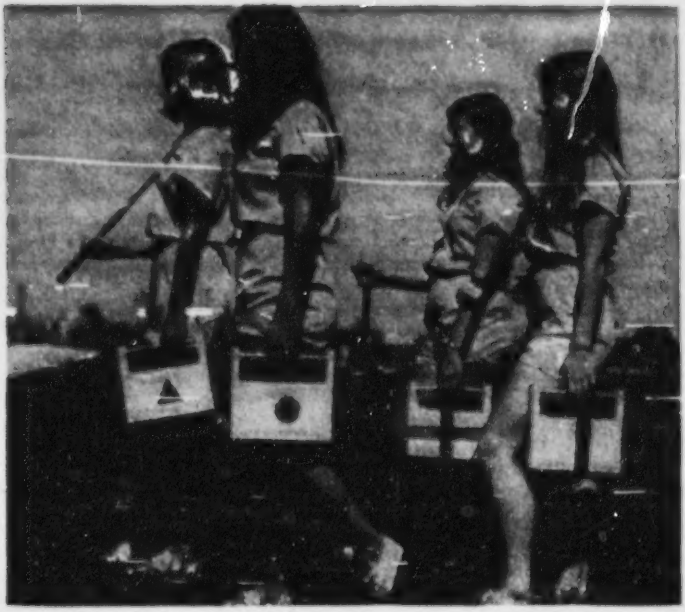


Figure 1.

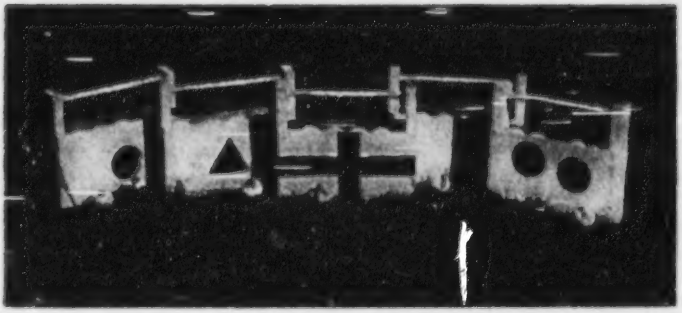


Figure 2.

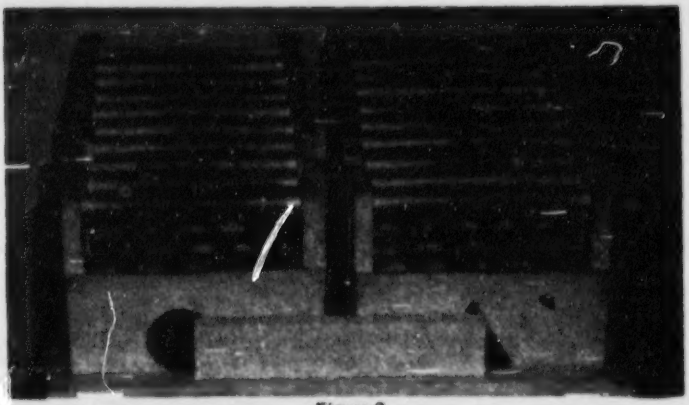


Figure 3.

any of her assigned balls are missing. Now students pick up their own marked balls and help each other as well.

A golf teacher does need sympathy, but she also needs ingenuity – like golf kits – so that she won't get "teed off" at immature student golfers.

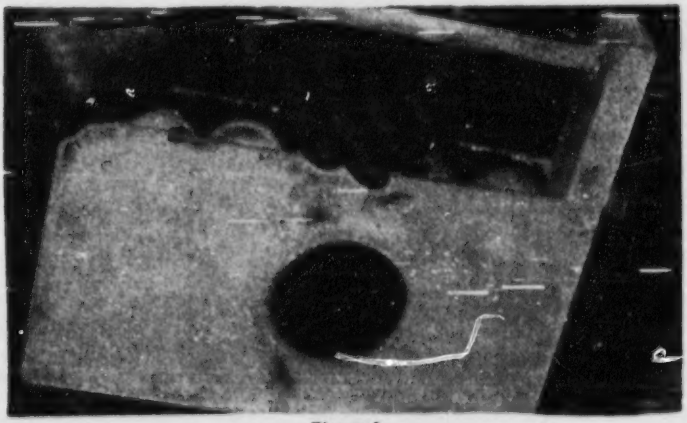


Figure 4.

GOLF BALL CADDY

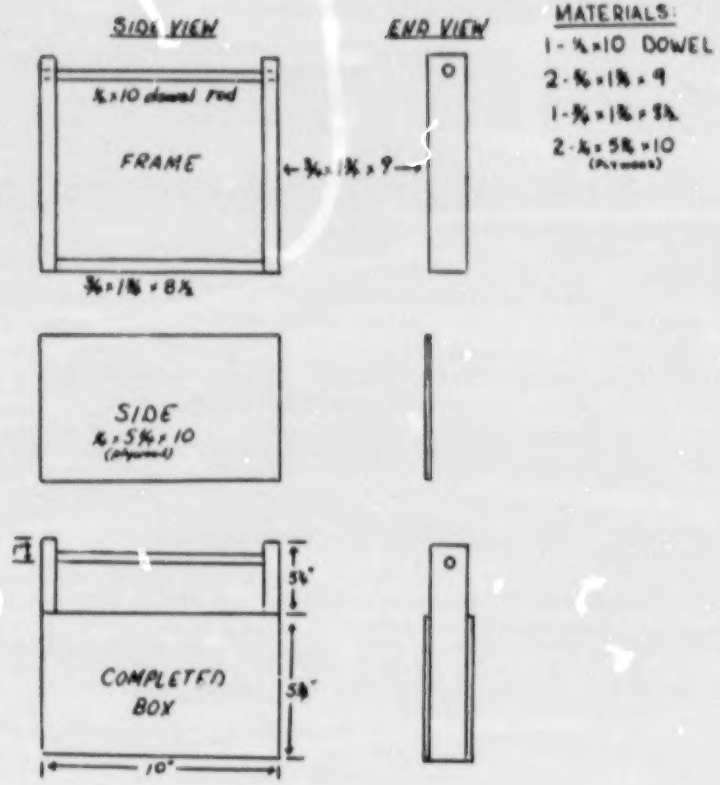


Figure 5. Golf ball caddy.

A Gamelike Putting Test

G. JEAN CERRA

Jean Cerra received her B.S. degree from Florida State University and her M.A. degree from the University of Iowa. She is currently at Stephens College in Columbia, Missouri, where – besides teaching a few golf classes – she teaches several of the physical education major theory courses and supervises student teachers. She has taught golf at the secondary and college levels for the past five years and attended the first National Golf Foundation Seminar at Pine Needles, North Carolina, during the summer of 1970. Jean Cerra is Golf Guide *chairman-elect.*

Golf instructors, when choosing skill tests to evaluate their classes, too often choose tests that are not gamelike. This criterion of "gamelikeness" is particularly important when measuring putting ability. Many times students are tested on artificial turf mats or carpet strips on gymnasium floors, stroking into a marked target area or a putting disc. If you have ever used conditions such as these, you soon realize that balls putted on such surfaces do not roll true and that there can be hidden breaks, depending on how the mat or carpet is rolled and stored. In addition, putting into a disc differs markedly from putting into a hole since many putts that roll into and out of a putting disc would more than likely fall into a hole. When using one of these artificial situations, one of the most important skills of a good putter – the ability to read greens – is eliminated. It is granted, however, that the above situation is better than none at all if there is not an actual green available to use. For those of you who are fortunate enough to teach in a college or university with its own golf course or practice green, or in a community where one has access to local golf facilities, a putting test on an actual green would yield more valid results.

H. Steven Brown has developed a golf test battery in which he evaluates chipping, approaching, driving, and putting.[1] The putting test described below is a modified version of Brown's putting test but differs from it in the following ways: (a) the scores can be used independently of any other test data, (b) the test can be applied to practice greens with fewer or more than six holes, (c) both long and short putts are taken into consideration, (d) the objectivity and

[1] Mary Jane Haskins, *Evaluation in Physical Education.* Dubuque, IA: Wm. C. Brown Co., 1971. Pp. 132-36.

reliability of the test are increased by marking with stakes the exact point from which all students should putt, and (e) it does not limit students to 12 putts but allows 10 or more trials, depending on whether the test is repeated or whether the stakes are reset.

The purpose of the following test is to measure putting ability in a manner comparable to an actual game situation. Only one trial is allowed from any specified point with no practice trials, since in a game there is only one opportunity to putt from wherever the ball lands with no allowance for practicing first. All types of lies are considered, as in an actual game; e.g., uphill, downhill, uneven, level, as well as right-to-left and left-to-right breaking putts. Putts are scored until "holed out," as opposed to a commonly used putting test where you have only one chance to putt toward a target or disc with concentric circles around it and points are allotted in increasing value relative to one's distance from the target.

Statistical data for this test is not available, since the contours and surfaces of all putting greens are different and the test would have to be set up in relation to each green used.

Test Area: a slightly rolling practice green with four or more holes.

Equipment and Placement:

1. 10 to 20 good balls.
2. A minimum of 10 markers (usually wooden square stakes, 3 x 3 x ½ inches, with a large nail through them) are numbered 1 to 10 with an arrow drawn on them to indicate direction.
3. The markers are then inserted into the green in numerical order (either in a clockwise or counterclockwise arrangement) with the arrow on each pointing toward the hole designated.
4. Care should be taken *not* to have the putting line of one or more stakes bisecting or traversing that of another.
5. No more than three stakes should be pointing toward one hole.
6. Markers should be set up according to the individual preference of the instructor and the contour of the green, with the following points taken into consideration:
   a. long putts
   b. short putts
   c. a downhill putt
   d. an uphill putt
   e. a right-to-left breaking putt
   f. a left-to-right breaking putt
   g. any combination of the above
   h. putts on a level lie
7. Once the markers have been set up they should *not* be moved, so that the test will be identical for all students.

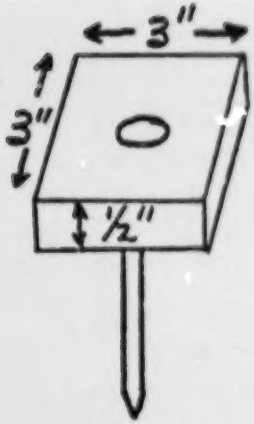


Figure 1.

Procedure:

1. Students will place a ball in line with and beside a given stake (Figure 2), starting with the first stake and continuing in the same

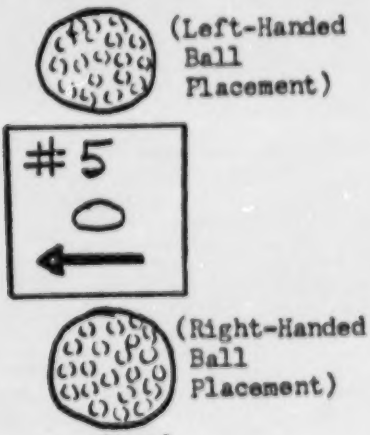


Figure 2.

manner for each of the remaining nine markers toward the four holes. (Left-handed golfers will place their ball on the opposite side of the stakes from right-handed golfers).

2. The subject will putt her ball from the stake toward the designated hole (determined by the direction of the arrow on each stake), counting each stroke taken until the ball is holed out.
   a. No putts are conceded.
   b. This procedure is repeated from each of the remaining markers.

Scoring:

1. The final score is the total number of strokes taken to hole-out from each marker. This score is recorded after completing the test from one marker and totaled at the end of the 10 trials.
2. Only one ball is putted from each stake.
3. The lower the score the better. For example, a girl who 2-putts eight of the markers and 1-putts the remaining two will have a score of 18; a girl who 2-putts from each of the markers will have a score of 20; one who 3-putts from each of the 10 markers will have a score of 30; and so on.

Suggestions for Class Purposes:

1. Students should be tested in pairs, so that one may count the strokes and record for the other.
   a. In order that one student does not gain an advantage from watching her partner's putt, they should alternate starting first from each of the 10 markers, OR one should complete all 10 trials first and then the other partner should follow taking her 10 trials, OR they may putt according to "honors" in order to keep it more like a game situation. As far as time is concerned, the first technique seems to be the quickest. The procedure decided upon, however, should be the same for the entire class so as not to slow down the testing process.
2. If time is not a critical factor, all subjects can start at the #1 stake in order to eliminate confusion regarding where to begin. In this way the pairs can be rotated in as soon as the couple in front has completed its trial from the first marker. However, when class time is limited, one pair could start at each of the markers rotating in order, so that 10 pairs (20 students) could be tested at once.
3. When coming to holes where several stakes are pointed, the couple who began the test first (or the group putting from the higher numbered stake) always has the "honors." This will permit the test to move freely and eliminate unnecessary waiting at the first marker.

4. Allot one ball to each pair to alleviate the problem of too many balls on the green at once. In this way, only 10 balls are needed (or one ball for each marker).

5. If time allows, set up more than 10 trials so that the test will be more valid and a greater differentiation in scores may be achieved.

Time:

Approximately 10 to 15 minutes per student or 20 to 30 minutes per pair to complete 10 trials. If 20 students are tested at once (as suggested in #2 above), it would take around 30 to 40 minutes to test approximately 30 students.

Modifications:

1. More than 10 trials may be taken, depending on the size of the green, class time, and the number of holes available.

2. If the test is to be taken twice, it should be completed once through entirely and then repeated, rather than taking two consecutive trials from the same stake.

Figure 3 can serve as a guide or sample of the test. Setting up the actual test area will depend on the individual instructor's discretion, the green available, and a consideration of the points previously mentioned relating to length and types of putts.

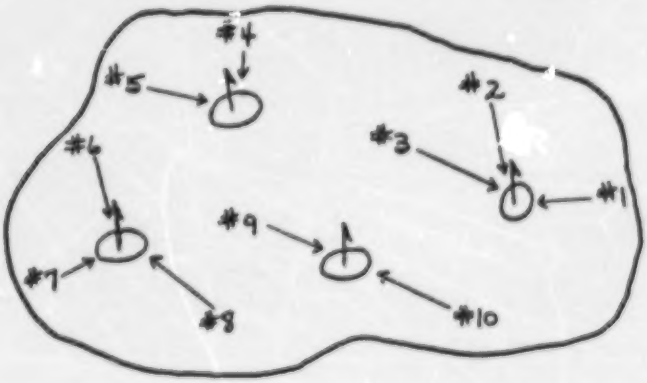


Figure 3.

Testing Golf Skill with Plastic Balls

DOYICE J. COTTEN
JERRY R. THOMAS
THOMAS PLASTER

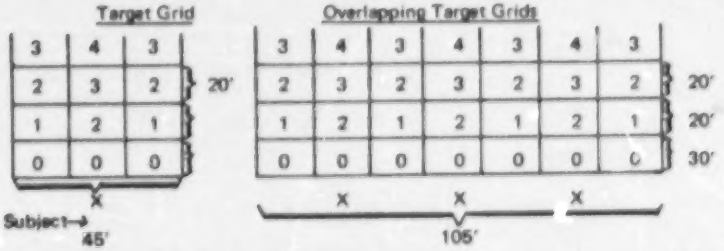
Doyice Cotten is professor of phytical education at Georgia Southern College. Jerry Thomas is an associate professor at Florida State University. Thomas Plaster, a graduate of Georgia Southern College, now teaches physical education at Manatee High School. All three have had experience teaching golf at the college level.

The golf teacher is often lacking on both range space and time for class instruction. In many cases, each student must hit only a few balls and then retrieve them. Since a disproportionate amount of time is then consumed retrieving balls, many teachers have resorted to the use of plastic balls for practice. They require less space and less time for retrieval, and they are also safer.

In addition to providing instruction and practice, most golf teachers must also eventually evaluate their students. While evaluation can often be done subjectively, it is usually considered more desirable to use some objective instrument. Since testing students on their skill in the use of irons involves space and time problems similar to those of practice, the authors devised the following Plastic Ball Golf Iron Test for use in classes.

Description

The complete test battery consists of 10 swings at plastic whiffle golf balls with each of the 3, 5, 7, and 9 irons. The subject's score



for each iron is the sum of the scores for the 10 swings with that iron. His score for the complete battery is the sum of the scores obtained for the four irons. The target grid is divided into 12 sections, with a point value assigned to each section. In order to facilitate scoring, the target grid and the scoring rules were simplified as much as possible. As a result, minor scoring inequities may occasionally occur; however, such inequities were permitted in order to achieve ease of administration for the test.

Scoring Rules

1. The *scoring area* of the target consists of those sections with assigned values of 1, 2, 3, or 4 points. Note that the three grid sections farthest from the student have no limit in regard to distance.
2. Each ball receives the point value assigned to the grid section in which it first strikes the ground. The section in which the ball lands was selected rather than the point to which the ball rolls so that the test could be standardized regardless of the condition of the grass.
3. A topped ball (one that rolls into the scoring area) receives one point less than the value assigned to the grid section in which it stops.
4. A ball striking a line receives the higher score value.
5. A ball stopping short of the scoring area receives no points.
6. A ball striking the ground to the left or right of the scoring area receives no points.
7. A swing that completely misses the ball counts as a trial and receives no points.

Administrative Suggestions

1. Several subjects may be tested simultaneously by utilizing adjacent or overlapping target grids.
2. The existing markings of a football field may be conveniently used for the three 15-foot (five yards) divisions of the grid.
3. A target object may be placed in the center of the 4-point section of the target grid.
4. A scorer for each subject may be stationed at the rear of the 4-point section of the target grid.

Conclusions

To determine if the test was a true measure of golf iron skill, the 3-5-7-9 combined test scores were correlated with judges' ratings and tee-to-green scores. Results (R_c = .82) indicated that the battery did

indeed provide a good, quick measure of golf iron skill. In addition, it was found that the 7-iron scores alone were an adequate measure of golf skill ($r = .76$).

There was also some concern about testing under windy conditions, so some subjects were tested with moderate crosswinds and headwinds. While correlations indicated that in general the best golfer remained best and the poorer golfers remained low, the teacher should not compare scores collected without a wind with scores collected under windy conditions. It is the experience of the authors, however, that the Plastic Ball Golf Iron Test does provide an easily administered measure of golf iron skill suitable for use in golf classes.

Annotated Golf Bibliography

FLORENCE BERRY

Florence Berry earned her B.S. degree from the University of California at Los Angeles and has done graduate study at the University of Illinois and Illinois State University. She has 25 years of high school teaching experience and is currently Illinois NAGWS treasurer.

Teaching and Coaching

Adams, Ronald. "Putt Putt Golf – Programs for the Handicapped." *Journal of Health, Physical Education, Recreation* 42: 48-50; March 1971. Includes diagrams of facilities, equipment needs for teaching putting game to physically disabled students.

American Association for Health, Physical Education, and Recreation. *Ideas for Golf Instruction.* Washington, DC: The Association, 1968. Ideas for organizing, planning, teaching, evaluating, and improvising in large school golf class.

Avance, Lyonel D. "Teaching Golf to Groups." *Journal of Health, Physical Education, Recreation* 44: 67; February 1972.

Bruce, Ben and Davies, Evelyn. *Beginning Golf.* Rev. ed. Belmont, Calif.: Wadsworth, 1968. Wadsworth Sports Skills Series. Values, history, equipment, techniques, rules, self-improvement, glossary, self-evaluation, bibliography.

Coyne, John. *The New Golf for Women.* Garden City, NY: Doubleday, 1973. Eight women golf professionals address themselves to the natural advantages of women in golf.

Golf Magazine Editors. *Golf Magazine's Handbook of Putting.* New York: Harper & Row, 1973. A complete guide to putting, illustrated.

Gordin, Richard and Myers, Roderick. *Golf Fundamentals.* Columbus, OH: Merrill, 1973.

Hunter, Mac. *Golf for Beginners.* New York: Grosset & Dunlap, 1973. By a PGA professional.

Jacobs, John. *Practical Golf.* Chicago: Quadrangle Books, 1972. An easy-to-understand presentation of all aspects of golf.

Mackey, Richard. "Hula Hoop Golf." *Journal of Health, Physical Education, Recreation* 44: 83-84; March 1973. Game for class motivation.

Merrins, Eddie with Dick Aultman and editors of Golf Digest. *Swing the Handle – Not the Clubhead.* Norwalk, CT: New York Times, 1973. A "simple method for producing a mechanically perfect swing" offered by a highly respected teacher and player.

National Golf Foundation. *Planning and Conducting Competitive*

Golf Events. Chicago: The Foundation (707 Merchandise Mart, 60654), 1973.

———. *Planning and Conducting Junior Golf Programs*. Chicago: The Foundation, 1973.

Scharff, Robert and editors of Golf Magazine. *Golf Magazine's Encyclopedia of Golf*. New York: Harper & Row, 1973. Fully illustrated; includes history, records, rules, courses, and techniques of play.

United States Golf Association. *Golf Rules in Pictures*. New York: The Association, current year.

Hermanson, Roger, ed. *Methods of Teaching*. Palm Beach Gardens, FL: Professional Golfers Association, 1972. PGA Home Study Program, an official teaching manual.

Popular Reading

Bartlett, Michael, ed. *Bartlett's World Golf Encyclopedia*. New York: Bantam, 1973.

Blake, Mindy. *The Golf Swing of the Future*. New York: Norton, 1972. An illustrated, scientific look at golf.

Gibson, Nevin. *Great Moments in Golf*. Cranbury, NJ: A. S. Barnes & Co., 1973. A history of many great golfers.

Jacklin, Tony. *The Champion's Own Story*. New York: Simon & Schuster, 1972. The story of the British champion, winner of two Opens at the age of 26.

Palmer, Arnold. *Go for Broke – My Philosophy of Winning Golf*. New York: Simon & Schuster, 1973.

Periodicals

Golf Digest. Golf Digest, Inc., 297 Westport Ave., Norwalk, CT. 06856. $7.50 per year.

Tee It Up. Magazine for Junior Golfers. National Junior Golfers Association, P.O. Box 27538, Station 7, Atlanta, GA 30327. 75 cents per copy, $6 per year.

The Golf Journal. United States Golf Association, 40 E. 38th St., New York, NY 10016. $3 per year.

The Lady Golfer. Seidal Publications, Box 1118, Scottsdale, AZ 85252. $6 per year.

The Professional Golfer. PGA National Headquarters, Box 12458, Palm Beach Gardens, FL 33403. $4 per year.

The Woman Golfer. The Woman Golfer Publishing Corporation, 131 Lincoln Highway, Frankfort, IL 60423. $5 per year.

Golf Visual Aids

KATHRYN WRIGHT

Prices listed are subject to change. Numbers in parentheses refer to film distributors listed.

Films

Courtesy on the Course. 18 min., 16mm, sd., color. Sale $120; rental $12.50 each or 3/$15 (5).

Golf #1 – Patty Berg. 16mm, sd., b&w. Rental $7.50 daily (7). Tips to improve anyone's golf game.

Golf #2 – Gene Littler. 16mm, sd., b&w. Rental $7.50 daily (7). Covers fundamentals of golf.

Golf #3 – Gene Littler. 16mm, sd., b&w. Rental $7.50 daily (7). Covers fundamentals of golf.

Hazards. 18 min., 16mm, sd., color. Rental $10 (8). Rules of golf on bunkers and water hazards.

Highlights of the First Five Kemper Opens. 16mm, sd., color. Free loan (4).

Kemper Open 1973. 16mm, sd., color. Free loan (4).

Lady Swingers. 10 min., 16mm, sd., color. A playing lesson on the course demonstrating basic fundamentals of the game. Sale $125 per print (9).

Masters Golf Tournament. 16mm, sd., color. Free loan. Current tournament. Available from nearest regional office, Texaco, Inc. Write Texaco, Inc., 135 East 42nd St., New York, N.Y. 10017, for nearest address.

Pebble Beach – The U.S. Open 1972. 30 min., 16mm, sd., color. Rental $20 (8). Jack Nicklaus wins his third U.S. Open.

Pointers on Par. 15 min., 16mm, sd., color. Rental $20 daily (7). Betsy Rawls and Mickey Wright showing how to hit every club in the bag.

54th P.G.A. Championship. 16mm, sd., color. Free loan (4).

Shell's Wonderful World of Golf. 16mm, sd., color. Free loan (6). Seventy-six films in series.

Sweeten Your Swing. 26 min., 16mm, sd., color. Instruction and illustrations by LPGA professionals Betty Burfeindt, Judy Rankin, and Pam Higgins. For information write Pentagon Park Tower, 4940 Viking Dr., Minneapolis, Minn. 55435.

Winning Golf. 16mm, sd., color. Sale $159.50; rental $19.95/3 days (3).

Filmstrips

Beginning Golf. 35mm, color, sd. or si. Rental $3.50; sale – sd. $65, si. $55 (5). Available in complete sets only. Six units. Includes instructor's guide and student handbook, *How to Improve Your Golf.*

Golf Group Instruction. 35mm, si., b&w. Sale $10 (1).

Loop Films

Golf–Men and Women. Consultant: The National Golf Foundation. Set of six. Sale $19.95 each (2).

Seven Loops on Golf. By Bruce Fossum. 8mm, color. Sale $174.65 Loop Film Series; $24.95 per cartridge (3).

Posters

Golf Rules Wall Chart. $1 (5).

Group Golf Instruction. Sale $9 series (1).

Visual Aids for Golf Instruction. $2.50 (5).

Film Distributors

1. American Association for Health, Physical Education, and Recreation. 1201 Sixteenth St., N.W., Washington, DC 20036
2. The Athletic Institute, 705 Merchandise Mart, Chicago, IL 60654.
3. Champions on Film, Inc. 745 State Circle, Ann Arbor, MI 48104.
4. Modern Talking Picture Service, Inc., 4084 Westheimer Rd., Houston, TX 77027.
5. National Golf Foundation, 707 Merchandise Mart, Chicago, IL 60654.
6. Shell Oil Company, 450 Meridan St., Indianapolis, IN 46204.
7. Sportlike Films, 20 North Wacker Dr., Chicago, IL 60606.
8. United States Golf Association, Golf House, Far Hills, NY 07931.
9. Wickham Fine Arts, 3036 Royal Dr., Shingle Springs, CA 95682.

ALSO AVAILABLE FROM AAHPER:

ARCHERY – A PLANNING GUIDE FOR GROUP AND INDIVIDUAL INSTRUCTION

Designed to provide practical suggestions for initiating group and individual archery instruction in physical education and recreation classes in schools and colleges and in programs conducted by camps, recreation departments and other agencies. Prepared by a committee of experienced teachers and leaders in archery for the AAHPER Outdoor Education Project and based on successful teaching methods in group instruction gained through many archery workshops and clinics. 1972.
64 pp. (245-25324) $3.25

ARCHERY SKILLS TEST MANUAL

Designed to improve teaching and evaluation of archery skills. Contains a series of skills tests with national norms for both boys and girls, ages 10-18. Provides complete instructions for administering the tests, and suggestions for their use as instructional aids.
36 pp. (242-07328) $1.25

GOLF GROUP INSTRUCTION (filmstrip)*

Illustrates class organization for group instruction, with emphasis on effective utilization of limited space through use of formations and teaching stations. Color filmstrip, 50 frames; guide/script; and 33-1/3 rpm 7" P record (11 min.) with inaudible signal. (245-07738) $10.00

IDEAS FOR GOLF INSTRUCTION

Topics covered include organization of large groups for instruction, fundamental techniques and teaching methods, tactics and strategy, visual aids and bibliography, and equipment. 30 pp. (245-07756) $1.00

SELECTED ARCHERY ARTICLES

A compilation of articles selected for their potential value to the archer, teacher, and coach. The articles cover historical background, selection and care of equipment, and instructional methods for improving skill at all levels. In addition, suggestions are included that offer a greater variety of shooting opportunities for all participants. 1971.
130 pp. (243-25160) $1.50

Order from AAHPER Publications-Sales, 1201 16th St., N.W., Washington, D.C. 20036. Orders for 10 or more copies of a single title are eligible for a 20% discount (except for those items marked with an * following title).

Schools, institutions, libraries and organizations may elect to be billed IF their order is submitted on an official purchase order form and amounts to a minimum of $10.00. Orders from individuals must be accompanied by payment (make check payable to AAHPER).

NAGWS SPECIAL PUBLICATIONS

DGWS Research Reports: Women in Sports, 1971	(243-06920)
DGWS Research Reports: Women in Sports, 1973	(243-25472)
Riding Standards	(243-25474)
Manual for Teaching Western Riding	(243-25106)
Philosophy and Standards for Girls and Women's Sports	(243-25484)
"Polly" Cartoons, Revised 1968	(243-07846)
"Polly" Cartoons II, 1971	(243-25170)
AIAW Handbook, 1973 published annually	(243-25344)
Basketball Rules 1974-75	(243-25536)
Field Hockey-Lacrosse Rules 1974-76	(243-25540)
Softball Rules 1974-76	(243-25580)
Volleyball Rules 1973-75	(243-25398)
Selected Aquatics Articles 1971	(243-07596)
Selected Archery Articles, 1971	(243-25160)
Selected Basketball Articles, 1971	(243-07066)
Selected Field Hockey and Lacrosse Articles, 1971	(243-25162)
Selected Gymnastics Articles, 1971	(243-25164)
Selected Riding Articles, 1969	(243-08036)
Selected Softball Articles, 1969	(243-08044)
Selected Track and Field Articles, 1971	(243-25166)
Techniques Charts	
Badminton, 1967	(243-07842)
Swimming, 1971	(243-25130)

ORDER FROM

American Alliance for Health, Physical Education, and Recreation
1201 Sixteenth Street, N.W., Washington, D.C. 20036